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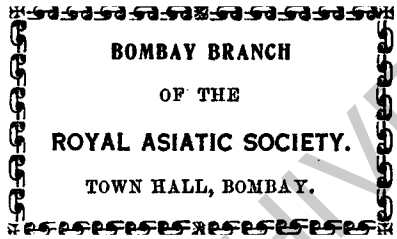

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MARSDEN'S

NUMISMATA ORIENTALIA.

A NEW EDITION

SUPPORTED IN THE PRELIMINARY ARTICLES BY THE FOLLOWING CONTRIBUTORS:

DR. H. BLOCHMANN. GENERAL A. CUNNINGHAM. MR. RHYS DAVIDS. DON PASCHAL DE GAYANGOS.
PROFESSOR GREGORIEF. SIR WALTER ELLIOT. SIR ARTHUR PHAYRE. MR. STANLEY L. POOLE.
MR. E. T. ROGERS. M. F. DE SAULCY. M. H. SAUVAIRE. MR. EDWARD THOMAS.

PART I.

ANCIENT INDIAN WEIGHTS.

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ac

BY

EDWARD THOMAS, F.R.S.,

LATE OF THE EAST INDIA COMPANY'S BENGAL CIVIL SERVICE,
CORRESPONDANT DE L'INSTITUT DE FRANCE; CORRESPONDING MEMBER OF THE GERMAN ORIENTAL SOCIETY;
MEMBER OF THE ROYAL ASIATIC SOCIETY; HONORARY MEMBER OF THE ASIATIC SOCIETY OF BENGAL;
MEMBRE DE LA SOCIÉTÉ ASIATIQUE DE PARIS; AND MEMBER OF THE
NUMISMATIC SOCIETY OF LONDON.

BOMBAY BRANCH
JACKSON
MEMORIAL
COLLECTION
ROYAL ASIATIC SOCIETY

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THE INTERNATIONAL NUMISMATA ORIENTALIA.

ADVANCED NOTICE.

Since the issue of the tentative prospectus of an International Numismata Orientalia, based upon the original edition of Marsden's Numismata Orientalia, some important modifications of the preliminary plan and general scope of the work have recommended themselves to the Publishers, which have equally commended themselves to the Editor's chief supporters.

The first design comprehended the narrow purpose of the continuation and completion of the substance of the old text published in 1822, with the concurrent reproduction of the admirably executed Copper-plates, prepared for Marsden's work, which had recently become the property of Messrs. Trübner & Co.

In both these departments the present undertaking now assumes a new and independent form. In lieu of accepting the task of making coins follow and supplement history, it seeks to prove the claims of Numismatic science to a higher mission in the illustration of the annals of olden time, to a power of instruction and teaching where written history is defective, and, in its lowest phase, of enabling us to test and rectify imperfectly preserved facts.

Under this expanded view, therefore, many subordinate sections of Marsden's old work will either be reduced to due proportions in reference to the uninstructive nature of their materials or omitted altogether: while on the other hand a class of subjects uncontemplated in the first International scheme will be introduced and included in this revised programme. For instance, instead of placing the Dynasties of the Khalifs of Baghdád, as of old, at the head of the list, a previous monograph has been devoted to the illustration of the first efforts in the art of coining, as exhibited in the electrum and gold pieces of Lydia and Persia, by Mr. Head. Mr. Gardner's contribution on the Parthians is already before the public. These will be followed by the Phœnician coins of Asia Minor by our eminent German coadjutor, Dr. Euting; and Mr. Madden, whose specialité lies in the "History of the Jewish Coinages," will hereafter embody in our pages his exhaustive studies in that division of critical numismatics.

General Cunningham's Indo-Scythian series, the materials of which—enriched by the unprecedentedly choice contents of the late Peshâwar *find*—are arranged and on their way home from India, will now find a fitting introduction in a full and thrice-elaborated review of "the Bactrian successors of Alexander the Great," to which, as a labour of love, he has devoted himself since his first appearance as a Numismatic coadjutor of James Prinsep in 1836.

Secondly, in regard to the illustrations of the old work, which it was once proposed to rely upon: they have been found, however excellent in themselves, practically unsuitable, either in grouping or mechanical accuracy, for the advanced demands of the present day. Indeed, the improved processes by which science has taught us to obtain, at a less cost, absolute *Sun* facsimiles, has necessarily superseded the hand and eye of the engraver, past or present, however perfect in his craft.

As far as the immediate state of the publication is concerned, it may be mentioned as a plea for seeming delay—that, in an amateur work of this kind, there are many obstacles to continuous or periodical issues, and it has been the Editor's aim rather to avoid such publications as were merely mechanical or repetitive; but, on the other hand, there has been no lack of support of the most efficient character, either at home or abroad—indeed, the Editor has had to decline many offers of contributions on the part of Numismatists of established reputation, as our lists are virtually made up beyond any prospect of absence of matter or immediate chance of publication of many of the already accepted papers.

Mr. Rhys Davids' Essay on Ceylon Coins is now presented. Mr. Rogers' paper has also appeared as Part IV. Sir W. Elliot and the Editor are engaged upon the Coins of Southern India—which have lately received some important accessions from Kolhápúr. M. Sauvaire's article has long been ready, under Mr. Rogers' careful translation, but its length has hitherto precluded its publication.

M. de Saulcy is, as of old, ever prepared to come to the front when his aid is called for,—and Dr. Blochmann has already done so much, in the Journal of the Asiatic Society of Bengal, towards the illustration of the local Coinages, that we have merely to reprint his papers whenever the serial arrangement of our articles may call for a consecutive continuation of the Pathán coins of Imperial Dehli. The Editor's own section of the general series is likewise reserved for somewhat similar motives.

M. Gregorieff's completion of his Tátar Dynasties has been temporarily deferred by his late responsibilities as President of the Oriental Congress at St. Petersburg. M. Tiesenhausen, whom we might have enlisted and who would willingly join our ranks at this time, has anticipated us in his elaborate survey of "Les Monnaies des Khalifes Orientaux" (1873), which may well claim to constitute *the* standard authority, in its own department, for many years to come. In another division of Numismatics, the Russian savants have been in advance of us, in the publication of the plates of Sassanian coins representing the patient accumulations of 30 years' of the life of M. de Bartholomæi (1873—second issue 1875, with an introduction by Prof. B. Dorn). These examples, however, prove less instructive than might have been anticipated. The sameness and iteration of the issues of the Sassanians has always been a subject of remark, but the singular deficiency of important novelties has seldom been so prominently displayed as in this collection, whose representative specimens spread over 32 well-filled 4to. plates.—[E. T.]

SUBJECTS ALREADY UNDERTAKEN, WITH THE NAMES OF CONTRIBUTORS.

Phœnician Coins	DR. JULIUS EUTING, Strassburg.
Coins of the Jews	MR. F. W. MADDEN.
Bactrian and Indo-Scythic Coins	GEN. A. CUNNINGHAM, Archæological Surveyor of India.
Coins of the Sassanians of Persia	MR. EDWARD THOMAS, F.R.S.
——— early Arabico-Byzantine adaptation	M. F. DE SAULCY, Paris.
——— Southern India	SIR WALTER ELLIOT, late Madras C.S.
——— Arakan and Pegu	SIR ARTHUR PHAYRE, late Commissioner of British Burmah.
——— the Khalifs of Spain, etc.	DON PASCUAL DE GAYANGOS, Madrid.
——— the Fatimites of Egypt	M. H. SAUVAIRE, Cairo.
——— the Ikhshídís	MR. REGINALD STUART POOLE, Keeper of Coins, B.M.
——— the Seljuks and Atábeks	MR. STANLEY L. POOLE, C.C.C., Oxford.
——— the Bengal Sultáns	DR. H. BLOCHMANN, Calcutta.
——— the Russo-Tátar Dynasties	PROFESSOR GREGORIEFF, St. Petersburg.

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THE INTERNATIONAL

NUMISMATA ORIENTALIA.

THE ADVANCED ARTICLES HAVE BEEN UNDERTAKEN BY THE FOLLOWING CONTRIBUTORS:

DR. H. BLOCHMANN. GENERAL A. CUNNINGHAM. SIR WALTER ELLIOT. PROF. JULIUS EUTING. DON PASCUAL DE GAYANGOS. PROFESSOR GREGORIEF. MR. F. W. MADDEN. SIR ARTHUR PHAYRE. MR. REGINALD S. POOLE. MR. STANLEY L. POOLE. M. F. DE SAULCY. M. H. SAUVAIRE. MR. EDWARD THOMAS.

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45

ON THE ANCIENT COINS AND MEASURES OF CEYLON,

WITH A DISCUSSION OF THE CEYLON DATE OF THE BUDDHA'S DEATH.

BY

T. W. RHYS DAVIDS,

OF THE MIDDLE TEMPLE, BARRISTER-AT-LAW; LATE OF THE CEYLON CIVIL SERVICE.

LONDON:
TRÜBNER & CO., 57 AND 59, LUDGATE HILL.

1877.

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PREFACE.

HAVING suggested to Messrs. Trübner & Co. the desirability of the issue of a new edition of "MARSDEN'S NUMISMATA ORIENTALIA" on an enlarged scale and on a basis calculated to secure the co-operation of representative numismatists of all nations, I felt myself bound to draft the general plan of the work, and to invite my coadjutors to a consideration of a common method of transliterating Oriental words, and a possible compromise among ourselves towards that important end.

I did not propose that my name should be prominently identified with the undertaking, desiring to leave the various sections of the publication to more able or younger men, and taking only so much share in it as to appear as one of the staff of contributors, answerable merely for my individual writings. As the prospects of the work have matured beyond all expectation, I have found it necessary to assume a more direct part in distributing the divisional subjects among the tried authors who have consented to join our ranks, and, in a subdued tone, in exacting conformity to a fixed method of treatment in the execution of the work at large.

Several papers were already in an advanced state of preparation, and in one case the illustrations were even printed off, when the urgency of the Publishers induced me to come to the front with the article now submitted. It has the advantage of appropriately opening a Book on Coins, inasmuch as it begins at the very beginning of the art of coining, otherwise I should not have cared to reproduce an Essay, partly published some years ago, without a much more searching and complete

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reconstruction than time has permitted in the present instance. With this reservation, I have sought to make the article as comprehensive as possible in itself, and seeing that this edition may go forth into foreign lands, where access to the English and other works cited in its pages may be difficult, if not impossible, I have further endeavoured, under the saving shadow of the small Note-type, to substitute explanatory quotations for the bare references it is usual to supply.

E. T.

LONDON, *August*, 1874.

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GENERAL PLAN OF THE WORK.

THE guiding scheme of the literary portion of the undertaking pre-supposes the complete independence of each signatory Editor, whose article or separate section of the combined work will constitute a detached *brochure*, or publication in itself—paged without reference to the larger Encyclopædia, the final limits of which it may be difficult to foretell; the ultimate incorporation of the separate Essays being determined by priority of date of the dynasty treated of,—while ample introductory heads of chapters and copious indices will secure all eventual facility of reference.

The general plan for the conduct of the work submitted to the different contributors contemplates—

A.—A brief but comprehensive outline of the history of the dynasty whose coins form the subject of review; or preferably, in some cases, detached notices for each reign.

B.—A leading and critical list of the regal succession, supplemented by a serial recognition of the contributions of all modern writers on the subject.

C.—A subordinate notice regarding the original intrinsic and exchangeable values of the current coin.

D.—A full and exhaustive numismatic list of the coins in due order; the text-notes or comments on individual pieces being restricted to marked peculiarities, which should only be enlarged upon in instances of historic importance. On the other hand, kindred illustrations from Palæographie or contemporary inscriptions, architectural or sigillary monuments, will materially aid the higher objects of the publication.

E.—A concluding *résumé* of the normal sites, the varying designations and fortunes of the mint cities, with a map and general geographical index of the towns and the dates developed on the dynastic coinage.

The following are the names of the contributors and the several subjects undertaken up to this time:—

Coins of Southern India	SIR WALTER ELLIOT, Scotland.
—— Arakan and Pegu	SIR ARTHUR PHAYRE, Ireland.
—— Ceylon	MR. RHYS DAVIDS, late Ceylon C.S.
—— the Indo-Scythians	GENERAL A. CUNNINGHAM, India.
—— the Bengal Sultáns	DR. H. BLOCHMANN, Calcutta.
—— the early Arabico-Byzantine adaptations	M. F. DE SAULCY, Paris.
—— the Russo-Tátár Dynasties	PROFESSOR GREGORIEF, St. Petersburg.
—— the Khalifs of Spain, &c.	DON PASCHAL DE GAYANGOS, Madrid.
—— the Fatimites of Egypt	M. H. SAUVAIRE, Cairo.
—— the Túlún Dynasty of Egypt	MR. E. T. ROGERS, Cairo.
—— the Seljúks, Ortokites, and Atábegs	MR. STANLEY L. POOLE, England.
—— the Sassanians of Persia	MR. EDWARD THOMAS, London.

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THE TRANSLITERATION OF ORIENTAL WORDS.

THE first responsibility the Editor of the new issue of Marsden's Numismata Orientalia has to encounter is the endeavour to obtain the adhesion of the various international contributors to a fixed and uniform system of transliteration of Oriental words.

Were the task limited to reconciling the different schools of the Arabic language, it would be sufficiently formidable at this moment, when each representative of a sectional adaptation of that speech claims dominance for his own method. But, in the present instance, we have to satisfy the requirements of numerous varieties of Aryan and Túránian speech, and to determine how far we are to admit the reconstructed Semitic alphabet to take rank over its elder brethren.

Considering the very late date of the elaboration of Arabic grammar, and the confessed adaptation of its alphabet from previously current systems of writing, we must clearly recognize the higher claims of the more Eastern nationalities, who did not mould their vocal organs on such mixed and discordant sounds, and who are so much more largely represented, both in spread and numbers, in the work now in course of publication.

It is a singular but suggestive fact that we hear of few difficulties in the way of the transliteration of the archaic languages, Egyptian, Assyrian, Phœnician, or Hebrew on the one part, or of the Túránian and Aryan writings on the other. For the due definition or reproduction of the Sanskrit alphabet, as developed from the Indian models on the Monoliths of Aṣoka (B.C. 250), the learned world are sufficiently in accord in the acceptance of Sir W. Jones's system. The contest commences when we have to submit Aryan and Túránian languages to the test of the, for them, needlessly amplified scheme of Arabic writing. The central type by which the question has to be tried for the purposes of this work is the *Aryan* Persian, already full of Aramaïsms, but retaining much of its archaic simplicity of grammar,[1] and which ultimately spread as the official language of the Ghaznavís and their successors, the occupying Pathán and Mughal rulers of India, and formed the basis of the modern *Urdú* or camp *lingua franca* of Hindústán, the now vernacular *Hindústání*. Seeing, then, how much of the orthography and attendant pronunciation of the language of the majority of our coin series are dependent upon the Persian basis, the Editor recommends to his coadjutors, in accordance with the genius of that language, the simplest form of transliteration possible for the consonants, while admitting a more extended range of option in the vowels, to meet the varieties of speech from time to time embodied in the adapted Persian alphabet.

The subjoined Table of Alphabets will show at a glance the different systems of transliteration advocated by the various linguistic authorities of our day, together with a final column of the scheme proposed for use in the present work. This has been framed upon the groundwork of the system adopted by Mr. Francis Johnson, in his Persian Dictionary, the latest and most enduring effort of our country towards the critical definition of a language once of the highest importance to us in our capacity as rulers of India.

In order to conciliate, and in so far satisfy the reasonable demands of the contributors, who undertake the purely Arabic sections of the work, a tentative scheme of diacritical marks for consonants has been devised; though in the parallel association with the words and names in *the original* character, which will appear in full, the discriminative signs in the *English* text scarcely seem to be needed. A further provision has been made against any confusion of letters like ش *sh* and سه *s h*, etc., by the admission of a break between the English letters in the latter case. For the more simple Persian and other languages, the Editor would suggest the rejection of all but really essential diacritical marks.

[1] Mírzá Ibrahím, once Persian Professor at the College of Haileybury, in speaking of the simplicity of his own tongue, remarks:

"The beginner cannot fail to observe, that many of the letters, as they are set down in the order of the alphabet, have the same sounds, as

ث س ص ز ض ظ ت ط ع ا ح ه

which have been marked S, Z, T, A, and H; and he may naturally wonder at this redundancy. In fact there is no actual redundancy. Eight of these letters

ق ع ظ ط ض ص ح ث

are peculiar to the Arabic, and are sounded in that language very differently from what they are in Persian. They have generally sounds very harsh and rough; some very difficult, and others almost impossible for an English beginner to imitate. Let him be consoled, however, with the assurance, that an exact imitation of these sounds is not only unnecessary, but absolutely useless to a reader of the Persian language; inasmuch as the Persians themselves never attempt to pronounce them as the Arabs (do, but) pronounce them merely like those Persian letters which come the nearest to them in point of sound, exactly as I have set them down in the order of the alphabet."—Persian Grammar. London, 1841. p. 4.

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The Sanskrit Alphabet, with the corresponding Roman equivalents, after the system of Sir W. Jones.

Gutturals	क k,	ख kh,	ग g,	घ gh,	ङ ṅ.
Palatals	च ch,	छ chh,	ज j,	झ jh,	ञ ñ.
Cerebrals	ट ṭ,	ठ ṭh,	ड ḍ,	ढ ḍh,	ण ṇ.
Dentals	त t,	थ th,	द d,	ध dh,	न n.
Labials	प p,	फ ph,	ब b,	भ bh,	म m.
Semivowels . . .	य y,	र r,	ल l,	व v,	
Sibilants and Aspirate	श ṣ,	ष sh,	स s,	ह h.	

Sanskrit vowels.

अ a,	आ á.
इ i,	ई í.
उ u,	ऊ ú.
ऋ ṛi,	ॠ ṛí.
ऌ ḷṛi,	ॡ ḷṛí.
ए e,	ऐ ai.
ओ o,	औ au.
अं aṇ,	अः aḥ.

Persian and Arabic Alphabets.

	1 Sir W. Jones.	2 Mirza Ibrahim	3 F. Johnson.	4 M. A. Chodzko.	5 Dr. Wright.	6 Dr. Fuerst.	7 Mr. Lane.	Proposed Scheme.
ا	a	a	a	e, a	a	ʾ	a	a
ب	b	b	b	b	b	b	b	b
پ	p	p	p	p	—	—	—	p
ت	ṭ	t	t	t	t	t	t	t
ث	th *or* ṣ	s	s	s	ṯ	ṯ, θ	th	ṡ
ج	j	j	j	dj	ǧ	ǧ	j	j
چ	ch	ch	ch	tch	—	—	—	ch
ح	ḥ	h	h	hh	ḥ	ḥ, ח	ḥ	ḥ
خ	kh	kh	kh	kh	ḫ	ḫ	kh	kh
د	d	d	d	d	d	d	d	d
ذ	ż	z	z	z	ḏ	ḏ	dh	ż
ر	r	r	r	r	r	r	r	r
ز	z	z	z	z	z	z	z	z
ژ	j	j	j	j	—	—	—	zh
س	ṣ	s	s	s	s	s	s	s
ش	sh	sh	sh	ch	ś	ś	sh	sh
ص	ṣ	s	s	s	ṣ	ṣ, ע	ṣ	ṣ
ض	ż	z	z	z	ḍ	ḍ	ḍ	ż
ط	ṭ	t	t	t	ṭ	ṭ	ṭ	ṭ
ظ	ż	z	z	z	ẓ	ẓ	ḍh	ż

	1 Sir W. Jones.	2 Mirza Ibrahim	3 F. Johnson.	4 M. A. Chodzko.	5 Dr. Wright.	6 Dr. Fuerst.	7 Mr. Lane.	Proposed Scheme.
ع	ع	a	ع	ʾa	ʿa	ע	ʾ, ạ	ʾ
غ	gh	gh	gh	gh	ġ	ġ	gh	gh
ف	f	f	f	f	f	f	f	f
ق	ḳ	ck	k	q	ḳ	ḳ	ḳ	ḳ
ك	ḳ	k	k	k	k	k	k	k
گ	g	g	g	g	—	—	—	g
ل	l	l	l	l	l	l	l	l
م	m	m	m	m	m	m	m	m
ن	n	n	n	n	n	n	n	n
و	v, w	v	v, w	v, oû	w	v, w, û	w	v, w
ه	ḥ	h	h	h, é	h	h	h	h
ي	y	y	y	y, î	y	y, i	y	y, i, e
ـَ	a	ă	a	e	a *or* è	a *or* e	a *or* e	a, ă
ـِ	i	ĕ	i	i	i	i *or* y	i	i, e
ـُ	u	ū	u	u	u *or* ö	o *or* u	u *or* o	u
ـا	ā	—	ā	â	ā	—	á	á
ـى	ī *or* e	—	ī	—	ī	—	ee	í, é
ـُو	ū *or* o	—	ū	ô *or* ou	ū	—	oo	ú,
ـَو	au *or* aw	—	au	ôou	—	—	ow, ó	au, ó
ـَى	ai	—	ay	—	—	—	ey, ei	ay, ai

No. 1.—Persian Grammar. London, 1828.
No. 2.— „ „ London, 1841
No. 3.—Persian Dictionary. London, 1852.
No. 4.—Grammaire Persane. Paris, 1852.

No. 5.—Arabic Grammar. London, 1859.
No. 6.—Hebrew and Chaldee Lexicon. London, 1867.
No. 7.—Arabic Lexicon. London, 1863-72.

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The Map of India which accompanies this article has been reduced by photography from the standard copper-plate Map of the East India Government, which constitutes the matrix of the various transfer lithographic illustrations which appear from time to time in the Indian Blue Books. I have to express my acknowledgments for the permission to use the reproduction, and to thank Messrs. Markham and Saunders for the adaptation of the outline chart to the definition of *the India of Manu*.

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NUMISMATA ORIENTALIA.

ANCIENT INDIAN WEIGHTS.

One of the latest authorities on International Metrologies, Don V. Queipo,[1] abandoning the wise reserve of Boeckh, has undertaken the task of tracing the derivation of the Indian system of weights and measures to primary Egyptian sources.[2] I am quite prepared to recognize Egypt's antecedent and more immediate influence on the civilization of the ancient world, and to admit, in advance, that, by a curious coincidence, her copper standard of 1200 B.C. is closely identical with one of India's earlier current weights,—a fact, be it said, hitherto unrecognized.[3] But, on the other hand, we must demand much more complete and searching evidence of borrowing or imitation to establish the leading proposition so confidently advanced by M. Queipo,—some such scale of proof, indeed, as that already sketched out by Boeckh himself in the following terms :—

"In cases where the weights and measures of two different nations are found to be in a precise and definite

[1] Essai sur les Systèmes Métriques et Monétaires des Anciens Peuples, par Don V. Queipo, 3 vols. 8vo. Paris, 1859.

[2] "Il n'en est pas de même des Indiens ; ceux-ci sont certainement très-anciens ; le bouddhisme est antérieur de six siècles à l'ère chrétienne ; le brahmanisme est antérieur au bouddhisme, et les Védas atteignent les temps ou, pour la race indienne, du moins, l'histoire commençait à peine. Il est donc curieux de voir si cette civilisation reculée, qui a su trouver tant de choses a su aussi trouver par elle-même une métrologie, ou si elle a reçu ses poids et mesures de peuples encore plus vieux qu'elle. La coudée indienne, *hasta*, est composée de deux empans (*vitasti*), et chaque empan de 12 doigts (*angula*) ; c'est la division égyptienne. La *hasta* est évaluée à 18 pouces anglais ou 457 millimètres ; c'est la coudée naturelle d'Egypte qui est de 450, ou, si l'on veut, la coudée olympique qui est de 462. Maintenant, comment les Indiens formeront-ils leurs mesures de capacité ? Cuberont-ils une partie cette *hasta* qu'ils ont fait leur ? Non, ils ont une *cumbha* qui est de 164 litres, et qui répond au cube de la coudée haschemite ou assyrienne (640 millimètres) ; c'est, du moins, ce que M. Queipo détermine par des calculs j' dicieusement conduits. Si l'on se tourne d'un autre côté, et que l'on recherche l'unité de poids chez les Indiens, on trouve le *tank-s*. ', qui est de 3 gr. 50, c'est-à-dire la drachme des Lagides, qui est elle-même un poids d'origine égyptienne."—Article by M. Littré, Jour. des Sav., April, 1861, p. 233. The reviewer continues :—"En 1834, profitant de ces trouvailles (sur la coudée égyptienne, etc.) un habile géomètre, M. Saigey, publia un ouvrage sur la métrologie ancienne, qui présenta les choses sous un nouveau jour. Dès ce moment, on peut le dire, surtout aprés les travaux de M. Queipo, la théorie générale en fut trouvée. Cette théorie repose sur deux faits fondamentaux, à savoir que toutes les mesures, tous les poids et toutes les monnaies, sont reliés par des relations mathématiques dans le système primordial, qui a son siége dans l'Egypte, l'Assyrie, la Phénicie, et que les systèmes de la Grèce, de l'Italie, de l'Arabie, de l'Inde, et de la Chine, en sont des dérivés." I may remark that the टंकशाला *ṭankaśálá*, تکسال above relied on means *a mint* for the production of coin, not *a coin* in its independent sense. The word *tanka* or *tanga* is stated by Erskine (History of India, i. 546) to have been of Chagatai Túrki origin, derived from *tang*, "white," टङ्क borax, etc. See also A. Vámbéry, *denge*, "monnaie d'argent" (Jagatai Dictionary), and the Russian *denge;* but, on the other hand, Aryan etymologists, with less reason, claim the word as their own under तनु, تنگ, *tenuis*, etc.

[3] This approximation of weights was first noticed in my Pathán Kings of Dehli (London, 1871), p. 362.

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ratio one to the other—either exactly equal, or exact multiples and parts of each other—we may fairly presume, either that the one has borrowed from the other, or that each has borrowed from some common source. Where the ratio is inaccurate or simply approximative, it is to be treated as accidental and undesigned."—George Grote, Minor Works, p. 138, Review of Boeckh's "Metrologische," etc. (Berlin, 1838).

It will be discovered in the following pages how far these conditions are fulfilled by the records of Indian monetary progress, traditional or material. Had M. Queipo confined the claims of the West to having influenced the literature and learning of the East at a later period, I should have been too ready to support him, as it can be proved to demonstration that the Brahmanical writers in after-times borrowed Greek science, and even appropriated the tenets of our Greek Testament, not only without acknowledgment, but with studious disguise and pretended *Indian* authority.[1] The origination of the Indian system of weights, *in India*, however, seems to admit of no question, the fundamental principles of which were probably framed *in situ* before the Vedic Aryans moved from the banks of the Oxus, and long before the Western branch of the Aryan family took their first lesson in Hellenic idolatry.[2] That the Indian system should disclose fragmentary points of relationship to the Egyptian, and more decided associations with the less remote Accad civilization of the Euphrates valley, was only to be expected,—the three nationalities were all members of the great Túránian family who once seem jointly to have occupied the southern limits of the supposedly habitable earth.[3] But the intrusion of new nationalities on the Tigris severed whatever of ethnic continuity may have previously existed, and left India to work out her own future, undisturbed by ties of race or foreign intervention,—so that very many centuries afterwards, when the Greeks penetrated into the land, they felt and acknowledged a purely independent national development,

[1] See *infrà*, p. 27.

[2] *Scythism and Hellenism.*—"The parents of all the heresies . . . are these four primary ones:

"The first is Barbarism (Βαρβαρισμὸς, Patriarchism?), which prevailed without a rival from the days of Adam through ten generations to the time of Noah. . . .

"The second is Scythism (Σκυθισμὸς), which prevailed from the days of Noah, and thence downwards to the building of the Tower and Babylon. . . .

"The third is Hellenism ('Ελληνισμὸς Ionism), which originated in the days of Seruch with the introduction of idolatry: and as man had hitherto followed each some demonolatrous superstition of his own, they were now reduced to a more established form of polity and to the rites and ceremonies of idols, and the followers of this began with the use of painting, making likenesses of those whom they had formerly honoured, either kings or chiefs. . . . The Egyptians, and Babylonians, and Phrygians, and Phœnicians were the first propagators of this superstition of making images and of the mysteries; from whom it was transferred to the Greeks from the time of Cecrops downwards. But it was not till afterwards, and at a considerable interval, that Cronos and Rhea, Zeus and Apollo, and the rest, were esteemed and honoured as gods."—Epiphanius, quoted in Cory's "Ancient Fragments" (London, 1832), p. 53.

[3] There are many curious traces of this ancient connexion, material and traditional. Strabo, xv. i. 25, quoting Nearchus, says, "When Alexander saw crocodiles in the Hydaspes, and Egyptian beans (*Nymphæa Nelumbo*) in the Acesines, he thought he had discovered the sources of the Nile."

"In manner, language, and many other respects, Egypt was certainly more Asiatic than African; and though there is no appearance of the Hindú and Egyptian religions having been borrowed from one another, . . . yet it is not improbable that those two nations may have proceeded from the same stock, and have migrated southwards from their parent country in Central Asia."—G. Wilkinson, "Ancient Egyptians," i. 3. See also his articles in Rawlinson's Herodotus, ii. 29, note 9, and Appendix, p. 279.

See also Herodotus, iv. 44, vii. 69, 70; Strabo, i. ii. 25, 26, xv. i. § 4, 13, 19, 25; Arrian, Indica, vi. "The Northern Indians bear a greater resemblance in form and feature to the Ægyptians;" vii. "The Indians were anciently like the Scythians, a wandering race of mortals who tilled no lands;" G. Syncellus, 151, c. Αἰθίοπες ἀπὸ Ἰνδοῦ ποταμοῦ ἀναστάντες πρὸς τῇ Αἰγύπτῳ ᾤκησαν, "The Ethiopians came from the Indus and settled in Egypt;" Eusebius, Chron. Can. ii. 278; Pliny, vi. 22, 26; Justin, ii. 1; Am. Marc. xxii. 15; Caldwell, Dravidian Grammar, 66, note. See also the ethnological Scythic connexion treated at p. 23, "The Brahui, the language of the Belúchi mountaineers in the Khánship of Kelat, enables us to trace the Drávidian race beyond the Indus to the southern confines of Central Asia;" and pp. 38, 42-3-5, 69, 71, etc.; and for the Australian continental question, p. 52; Prinsep's Essays, vol. ii. p. 50.

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altogether removed from the characteristics of the other Oriental nations with whom they had come in contact.[1]

As regards the near approximation of a single Indian weight to the *kat* or *unit* of the Egyptians, this point will form the subject of further illustration. In the meanwhile, we may freely recognize the possibility of an accepted commercial weight, in these primitive days of traffic and barter, passing mechanically from nation to nation; and though divided by distance and other obstructions, there were many intermediary carriers who may have transported the given weight or its near counterparts from Egypt to India. Whether this result was due to the wholesale deportation of races so prevalent in Euphrates politics,[2] or brought about by the ordinary commercial intercourse on the lines of the Oxus and the Hindú Kush, or more directly through the deserts of Southern Persia and the coast of Mekrán, we need not stop to inquire.

Having so far outlined the case of the competing claims of two dissevered nationalities to priority in the adoption of an unimportant item in the Metric Scale, we come to the much more pertinent inquiry involved in the closer and more abiding relations established between the old and the new lords of India's soil, and have to endeavour to distinguish the traces of the later contributions and innovations of the northern Aryans from the home developments of the aborigines, or the secondary advances of the earlier occupying races. The Vedic Aryans, as will be seen hereafter, during their passage in tribal sections through the gorges and valleys of the Hindú Kush, carried down with them a type of Phœnician writing, in a very advanced stage of adaptation towards the higher aims and more exact expression of the Sanskrit language; and with these assimilated characters, as shown by their subsequent co-ordination, a method of numeration distinctly based upon Phœnico-Egyptian ideals: while the indigenous Indians of a closely subsequent epoch are found to employ an independent scheme of figures, in appropriate unison with the outlines of their own local alphabet. These and other international questions will have to be examined more at large in future pages; but thus much of preliminary notice is necessary, as it may be very difficult to discriminate and separate these conflicting influences as they present themselves in the ordinary course of the investigation.

[1] "Moreover, India being of the largest extent of all others, by far, is inhabited by many different nations (of whom none are foreigners, but all natural inhabitants): and they say that no strangers ever planted amongst them, nor they themselves ever sent forth any colonies into other countries; and they tell stories that anciently the inhabitants fed only upon herbs and roots that grow in the fields, and clothed themselves with wild beasts' skins, as the Grecians did; and that arts and other things conducing to the well-being of man's life were found out by degrees, necessity pressing upon a creature that was rational and ingenious, and had likewise the further helps and advantages of hands, speech, and quickness of invention to find out ways to relieve himself."—(Magasthenes) Diodorus Siculus, ii. 38. Translation of G. Booth (1814), i. p. 132. So also Strabo, quoting Megasthenes, who "advises persons not to credit the ancient histories of India, for, except the expeditions of Hercules, of Bacchus (?), and the later invasion of Alexander, no army was ever sent out of their country by the Indians, nor did any foreign enemy ever invade or conquer it. . . . But not one of these persons proceeded as far as India, and Semiramis died before her intended enterprise was undertaken." Strabo, xv. c. i. § 6, Falconer's translation. See also Arrian, Indica, x. *et seq.*; Pliny, vi. 21; Mas'audi, Meadows of Gold, Paris edit., i. 148.

[2] Rawlinson's Ancient Monarchies, ii. 529, "Under the Assyrian Kings, Chaldeans were transported into Armenia, Jews and Israelites into Assyria and Media, Arabians, Babylonians, Susianians, and Persians into Palestine. 'The most distant portions of the empire changed inhabitants; and no sooner did a people become troublesome from its patriotism and love of independence, than it was weakened by dispersion, and its spirit subdued by the severance of all its local associations." See also p. 430.

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The general subject under review seems to divide itself into four groups.

I. Weights and their corresponding Measures.

II. Money, under its historical aspect.

III. Coins, *proper*, as distinguished from Bullion.

IV. Weights of the normal Indian Coins tested by their coincidence with the later Mediæval Mint issues of the land.

This division into chapters will necessarily entail a certain amount of repetition in the text, and frequent cross references to the illustrative notes; but, though inconvenient in some respects, it is the only methodic way of placing the whole question fully and clearly before the reader.

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CHAPTER I.[1]

WEIGHTS AND THEIR CORRESPONDING MEASURES.

THE system of Indian weights, in its local development, though necessarily asserting a minor claim to the consideration of the European world, may well maintain a leading position in the general investigation of national metrologies, on the ground of its rudimentary and independent organization, and the very ancient date at which its definitions were embodied and committed to writing; while to numismatists it offers the exceptional interest of being able to exhibit extant equivalents of the specified weights preserved in the authoritative text of the original code of Hindu law, as professedly expounded by Manu, and incorporated in the Mánava Dharma Ṣástra. The positive epoch of this work is undetermined; but it confessedly represents, in its precepts,[2] a state of society considerably anterior to the ultimate date of their collection and final redaction;[3] while the body of the compilation is assigned, on speculative[4] grounds, to something more than 400 B.C.

It is a singular and highly suggestive fact that numismatic testimony should have already taught us to look for the site of the chief seat of ancient civilization in Northern India, to the west-

[1] The heads and partial framework of this article, amounting to about one-quarter of the matter now printed, were originally published in the Numismatic Chronicle for 1864. The Asiatic Society of Bengal did me the unaccustomed honour to reprint the article in their Journal for 1864–5.

[2] Treatises on Law long anterior "to Manu are still in existence."—Prof. Aufrecht, Philological Society's Transactions, 1873, p. 222.

[3] I trust it will not be imagined that I desire to ignore Megasthenes's statement, that the Indians had "no written laws" (Strabo, xv. c. i. § 53). This is, indeed, precisely the testimony—seeing the source from whence it was derived—we should expect from what we *now* know of Brahmanical policy (note 3, p. 8). As to the addition, "who are ignorant even of writing," this vague assertion had previously been nullified by the more accurate information of Nearchus (Strabo, xv. c. i. § 67), and is further conclusively repudiated by the incidental evidence contained in the remarkable passage in the same work, where it is stated, "At the beginning of the new year all the philosophers repair to the king at the gate, and anything useful which they have committed to *writing*, or observed, tending to improve the productions of the earth, is then publicly declared" (xv. c. i. § 39).

Professor Max Müller, in his work on "Sanskrit Literature" (London, 1859), has devoted several pages to the examination of the use of writing in India, in olden time. I concur in his conclusions as to its limited employment among the Vedic Aryans, though I explain this firstly by the imperfect development and unsettled life they led, and secondly by the defective nature of the Bactrian alphabet they apparently relied on; but more especially to the later priestly tendency to discourage unauthorized readers. But I demur distinctly to any such limitation being applied to the nations of India at large. Buddhism, in its overt acts, implies education among the masses, if in nothing else, in the prominence accorded to doctrinal public inscriptions and practical writing on mile-stones.

[4] Max Müller says—"The Code of Manu is almost the only work in Sanskrit literature which has as yet not been assailed by those who doubt the antiquity of everything Indian"; though he reduces the date to about 400 B.C., and points out that the Laws of Manu are paraphrases of the Dharma Sútras of the Mánavas.—Sanskrit Literature, pp. 61, 62, 206; and Morley's Digest, p. cxcvii.

Prof. H. H. Wilson, though hesitating to admit the high antiquity of the entire bulk of the composition, was fully prepared to assign many passages to a date "at least" as early as 800 B.C.—Prinsep's Essays, i. note, p. 222. See also Professor Wilson's translation of the Rig Veda Sanhitá, i. p. xlvii.

M. Vivien de St.-Martin places Manu under "la période des *temps héroïques*," *i.e.* between the twelfth and thirteenth centuries B.C. and the Buddhist epoch of B.C. 543.—Etude sur la Géographie et les Populations primitives de l'Inde, Paris, 1859. The same writer, in a later paper in the Révue Germanique of 1861, p. 80, fixes the first appearance of the Aryans in India at 1600 B.C., the collection of the Vedic writings at 1200 B.C., and Buddha's Nirvána at 543 B.C.

Prof. Cowell, in his edition of Elphinstone's India (edit. 1866, p. 249), reduces the date of Manu to the third century B.C., but adds that "it was undoubtedly composed from older documents," and "may therefore be considered as the last redaction of the traditional laws of the Mánavas."

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ward of the Upper Jumna—a tract, for ages past, relatively impoverished. For such a deduction we have indirect, but not the less valuable historical authority, derived in parallel coincidence from the comparative geography of the Vedic period, and from the verbatim text of Manu, the integrity of which seems in these matters to have been sufficiently preserved.

The most prolific field among the favoured resorts of our native coin collectors, in 1837, chanced to be the exact section of the country constituting the *Brahmávarta* of the Hindu lawgiver; and *Thaneswar* (lat. 29° 58′, long. 76° 54′)—since so celebrated in the annals of the land as the battle-field of successive contending hosts—contributed, at its local fairs, many of the choicest specimens of the inceptive currencies. In this region the Aryans appear to have almost lost their separate identity, and to have commenced the transitional process of merging their ethnic individuality amid the resident population, though still asserting religious and incidentally political supremacy. Such a state of things seems vividly shadowed forth in the ethnological definitions preserved in Manu; and it may possibly prove to be more than a mere coincidence, that the geographical distribution of the limits of "*Brahmarshi*, as distinguished from *Brahmávarta*," in the same passage, should so nearly be identical with the general boundaries I have elsewhere traced,[1] from independent sources, for the spread of the Bactrian alphabet in its Eastern course.

As I have claimed for the Pre-Aryan Indians the independent creation of an alphabet specially contrived for, and adapted to, their own lingual requirements,[2] similarly it can be shown,

[1] *Infrà*, p. 47.

[2] Prinsep's Essays, London, 1858, ii. 43; Num. Chron. 1863, p. 226. Later investigations enabled me to take a more comprehensive view of the derivation of Aryan alphabets, of which I subjoin a summary. "At a Meeting of the Royal Asiatic Society, on the 9th April, 1866, The Right Hon. Viscount Strangford in the chair,—Mr. Thomas, adverting to recent controversies respecting the parentage of the various modes of writing in use in Ancient India, spoke 'On the Adapted Alphabets of the Aryan Races.' These were the results of his palæographical investigations: The Aryans invented no alphabet of their own for their special form of human speech, but were, in all their migrations, indebted to the nationality amid whom they settled for their instruction in the science of writing: (1) The *Persian Cuneiform* owed its origin to the Assyrian, and the Assyrian Cuneiform emanated from an antecedent Turanian symbolic character; (2) the *Greek* and *Latin* alphabets were manifestly derived from the Phœnician; (3) the *Bactrian* was adapted to its more precise functions by a reconstruction and amplification of Phœnician models; (4) the *Devanágarí* was appropriated to the expression of the Sanskrit language from the pre-existing Indian Páli or *Lát* alphabet, which was obviously originated to meet the requirements of Turanian (Drávidian) dialects; (5) the *Pehlví* was the offspring of later and already modified Phœnician letters; and (6) the *Zend* was elaborated out of the limited elements of the Pehlví writing, but by a totally different method to that followed in the adaptation of the Semitic Bactrian. Mr. Thomas then proceeded to advert to the single point open to discussion involved under the fourth head, tracing the progress of the successive waves of Aryan immigration from the Oxus into the provinces of Ariania and the Hindú Kush, and the downward course of the pastoral races from their first entry into the Panjáb and the associate crude chants of the Vedic hymns to the establishment of the cultivated Brahmanic institutions on the banks of the Sarasvatí, and the elaboration of Sanskrit grammar at Taxila, connecting the advance of their literature with the simplified but extended alphabet they constructed in the Arianian provinces out of a very archaic type of Phœnician, and whose graphic efficiency was so singularly aided by the free use of birch bark. This alphabet continued in use as the official writing under the Greek and Indo-Scythian rulers of Northern India, until it was superseded by the superior fitness and capabilities of the local Páli, which is proved by Aṣoka's scattered inscriptions on rocks and monoliths (Láts) to have constituted the current writing of the continent of India in B.C. 250, while a similar, if not identical, character is seen to have furnished the prototype of all the varying systems of writing employed by the different nationalities of India at large, from Sind to Ceylon, and spreading over Burmah, till the Indian Páli meets Chinese alphabets on their own soil in Annam. In conclusion, Mr. Thomas pointed out the importance of the discoveries of Norris and Caldwell, derived from completely independent sources, regarding the Scythic origin of the introductory Indian alphabets."—*Athenæum*, April 14, 1866.

No substantive article was ever prepared or published in further development of the somewhat comprehensive theory thus enunciated; but its purport has been quoted, with seeming approval, and, as far as I am aware, without hostile comment, in France and Germany. The subject has likewise been discussed at two several meetings of the Asiatic Society of Bengal (Journ. As. Soc. Bengal, and Report of Meeting, 6th Feb. 1867, p. 33. See also J.R.A.S. vol. v. (N.S.) p. 421). With the general tenor of these *quasi*-conversational proceedings I have no possible cause of dissatisfaction. Naturally, the living representatives of the Indian

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from as valid internal indications, that they originated, altogether on their own soil, that which has so often proved a nation's unassailable heritage of its indigenous civilization—a system of weights and measures, which retained its primitive identity in the presence of successive dominant exotic nationalities. It seems clear that the intrusive Aryans, at whatever period their advent is to be placed, met and encountered a people, already dwelling in the land, of higher domestic civilization and material culture than themselves. Whether their eventual supremacy was due to undiminished northern energy, superior animal physique, or higher mental powers,[1] does not concern us at present; but independent of the inner-life evidences to that effect, a parallel inference might be drawn from the indirect data and the contrasted tenor of the hymns of the Rig Veda,[2] which, while indicating in their chants an immature social condition, refer almost exclusively to the geography of the Seven Rivers; whereas Manu, at a date but moderately subsequent,[3] associates the far higher progress manifested in the body of the work with a more easterly seat of authority, and while asserting no community with things or people beyond, or to the *westward* of the Sarasvatí, arrogates for the existing representatives of the Aryans a dominance over kindred kingdoms, extending, *in* the *opposite direction,* down the Ganges to Kanauj. But, in demanding credence for the simple gifts of invention arising out of manifest wants among the already thrice commixed, and in so far improved[4] local inhabitants, as opposed to the Aryan assumption of the introduction of all knowledge, I am by no means prepared to contend that the domiciled races gained nothing in return. The very contact of independently-wrought civilizations, to whatever point each had progressed, would tend mutually to advantage both one and the other; the question to be asked is, which of the two was best prepared to receive new lights, and to utilize and incorporate the incidental advantages within their own body politic? The obvious result in this case, though denoting the surrender by one nation of all their marked individuality, by no means implies that they did not carry with them the full force of their

Aryans resented any notion of their ancestors having borrowed, even more convenient mechanical vehicles for the expression of thought, from the pretendedly ignorant Dravidians of the south; but the facts come up cumulatively against them. To the above list may now (1874) be added "the Cyprian alphabet, embodying the *Greek language.*" The former is found to be "of cuneiform origin and so imperfect, as compared with the Phœnician scheme, that as soon as the Phœnician letters became known, it had to vanish."—Max Müller, *Academy*, 15th May, 1874, p. 546.

[1] The Rev. M. A. Sherring (*Indian Antiquary* for Sept. 1872), describes the Brahman, in his modern stronghold at Benares, "as endowed with an extremely subtle, rather than with a powerful mind; which by long habit, perpetuated from age to age, and from family to family, he has trained to the utmost keenness; dogmatic, self-willed, pertinacious, and supremely arrogant and vain."

[2] Wilson, Rig Veda Sanhitá, iii. pp. xviii. xix. London, 1857; Vivien St.-Martin, Etude sur la Géographie . . . d'après les Hymnes Védiques, Paris, 1859, p. 89.

[3] Journal As. Soc. Bengal, 1862, p. 49; Max Müller's Rig Veda, preface to text, iv. pp. xxv-xxxiv.

For speculative dates in regard to the Vedas, see also Max Müller, Sanskrit Lit, pp. 244, 300, etc.; Wilson, Rig Veda, i. 47, ii. 1; St.-Martin, p. xix; M. Barthélemy St.-Hilaire, *Journal des Savants*, 1861, p. 53; Dr. Martin Haug, Aitareya Bráhmana, Bombay, 1863; Goldstücker, Páṇini, p. 72, etc.

[4] "We have, therefore, according to the views just summarily expounded, four separate strata, so to speak, of population in India: 1. The forest tribes, such as the Kolas, Santhals, Bhills, etc., who may have entered India from the north-east. 2. The Drávidians, who entered India from the north-west, and either advanced voluntarily towards their ultimate seats in the south of the peninsula, or were driven by the pressure of subsequent hordes, following them from the same direction. 3. The race of Scythian or non-Aryan immigrants from the north-west, whose language afterwards united with the Sanskrit to form the Prákrit dialects of Northern India. 4. The Aryan invaders who (after separating first from the other branches of the Indo-Germanic stock, and last of all from the Persian branch of that family), advanced into India, drove before them the non-Aryan tribes who were previously in possession of the Punjáb and other parts of the North-West provinces of India, and after organizing Brahmanical communities, and founding Brahmanical institutions in the north, gradually diffused themselves to the east and south, and eventually extended their discipline, and to some degree their sacred language, to the remotest parts of the peninsula."—Muir's Sanskrit Texts, ii. pp. 487-8. See also Caldwell's Drávidian Grammar.

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influence, and affect materially the character of the people among whom, at the end of their wanderings, they introduced a priestly absolutism, which has progressively grown and increased rather than lost power over all India.

Here again a consecutive query forces itself upon our consideration. The Aryans are inferentially supposed to have been in a comparatively barbarous state on their first entry into the land of the *Saptu Sindu*, or "Seven Rivers."[1] There are no direct indications of how long a period they spent in traversing six out of the seven streams, or what opportunities may have been afforded for social improvement during the onward movement; but even by their own showing in the sacred hymns of the Rig Veda, the Aryans, when they had reached the banks of the Sarasvatí, were still but imperfectly civilized. The *Dasyus*, or indigenous races, with whom they came in contact in the Panjáb, may also have been in a more or less backward stage of national development, due to the influences of a *quasi*-pastoral life; while the more settled inhabitants of the kingdoms on the Jumna must be taken to have been well advanced in civil and political refinement.[2] Is it not, therefore, probable, that when the Aryan tribes, at the close of their migrations, settled in the midst of an organized and homogeneous nation, independent leading spirits may have detected the opportunity for the origination of a new religion, to be evolved out of the rude elemental worship of the immigrants, aided by the mystification of the exotic language which came so opportunely in company?[3] The narrow geographical strip, to which the promoters of this advanced creed, as represented in the pages of Manu, confined the already arrogant priestly element intervening between the two nationalities,

[1] St.-Martin, p. 91, "Il semble que la vie sociale des Aryas n'ait commencé qu'à l'orient du grand fleuve (l'Indus), comme si les tribus, à l'époque où elles le franchirent, eussent été trop barbares encore pour avoir gardé la mémoire de leur vie antérieure." Professor W. D. Whitney, of Yale College, one of our most advanced Sanskrit scholars, was likewise struck with the contrast presented in their different stages of Vedic life. He remarks, "The hymns of the Vedas were chiefly composed on the banks of the Indus and its tributaries, when the great valley of the Ganges was as yet unknown to the Aryan immigrants; and they present the elephant as a still-wondered-at animal: while the earliest tidings of India which we have from without show us great kingdoms on the Ganges and the elephant reduced to the service of man both in war and peace."—The Study of Language, London, 1867, p. 226.

[2] Prof. Wilson, while speaking of the ultimate self-development of the Aryans in the Panjáb, remarks, "It [is] indisputable that the Hindus of the *Vaidik* era had attained to an advanced stage of civilization, little, if at all, differing from that in which they were found by the Greeks at Alexander's invasion, although no doubt they had not spread so far to the east, and were located chiefly in the Panjáb and along the Indus" (Rig Veda, ii. p. xvii). I am inclined to question this latter inference. I do not think the civilization evidenced in the text of the Rig Veda by any means up to the mark of that discovered on the advent of the Greeks; indeed, it would be a complete anomaly to suppose that the Aryans, while occupied in pressing their way onwards, in constant hostility with the local tribes, should have made a proportionately greater progress in national culture than they did in the subsequent six or seven centuries of fixed residence in their new homes within the Seven Rivers.

[3] The late Dr. Goldstücker, in an essay in the *Westminster Review* (1864, p. 154), has justly remarked that the 1028 incoherent hymns of the Rig Veda constituted but a poor stock in trade whereon to found a new religion. Nor do the Soma "inspired" Rishis to whom they were revealed, or technically "seen," appear, from the internal evidence of their embodied compositions, to have possessed any such mental qualifications as should have been equal to the origination of the higher intellectual structure of Brahmanism. Prof. Goldstücker proceeds, "The Hindu priesthood, however, has managed to demonstrate that 1028 hymns mean in reality a very ponderous mass of divinely revealed works. 'These hymns,' it says to the people, 'you must be aware, speak of ritual acts which are unintelligible to you, and they make allusion also to events, human and divine, which are shrouded in obscurity; hence you must admit that those works called *Brâhmanas*, which explain the proper performance of rites—which give illustrations of those events and legendary narratives, and which contain philosophical speculations to boot—are a necessary complement of the inspired Rig Veda hymns.' . . . . 1028 hymns, of a few verses each, are but a poor livelihood for a fast increasing number of holy and idle men: but expand these hymns into a host of works which even the most diligent student could not master in less than several years; apply to their teaching the rule that a pupil must never study them from a manuscript, but receive them orally from his spiritual guide; make them the basis of a complicated ritual, which no one is allowed to perform without a host of priests, and handsome presents to each of them—and what a bright perspective opens itself to a member of the Brahmanical caste, and to those who follow in his track!"

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would seem to savour more of an esoteric intention than of any natural result of conquest or of progressive power achieved by the settlement of an intellectually higher class. That the Aryans should be able so completely to divest themselves of their national entity, and leave no trace behind them, would be singular in itself; but the concentration of all god-like properties on a mere boundary-line, so much insisted upon as Brahmanism grew and pushed its forces downwards into the richer countries of Hindústán, while it ignored both the land of the nativity of its votaries and the site of their later more advantageous domestication, forms a fair subject for present speculation and future mature investigation. So that it may be summarized, if the pure Aryan races, in their other migrations, ultimately arrived at contrasted theogonies, adopted divergent forms of speech, and submitted themselves to the prevalent manners and customs encountered in their western lines of settlement, it is asking but little to attribute a dominant influence to the independent civilization of a nation Alexander no more recognized as his ethnic brethren, than the British soldier in later days discovered his kindred in Professor Max Müller's typical Bengali,[1] or in the Sepoy mutineer, who might have claimed a less degraded relationship. But this in itself is a matter only incidental to my special subject, and I return to the question, that if the Aryans were so far instructed on their early sectional immigrations as to bring with them, or subsequently to import and amplify, the Phœnician alphabet, and similarly to secure its transmission, even as a secondary system of writing, over all the country of the Brahmarshis, it would be rash to attempt to place a limit on the amount of Chaldæan or other western sciences that may have accompanied these cursive letters,[2] which, either directly or indirectly, travelled eastward from the borders of Mesopotamia to the banks of the Ganges. And clearly, if the grammarian Páṇini's age has been rightly determined by his special modern commentator,[3] Bactrian writing, or *Yavanáṇi-lipi*,[4] must have been freely current at Taxila at and before B.C. 543, even as it subsequently became the ruling alphabet in those parts, so as to appear as the Inscription character under Aṣoka (B.C. 246) in the Pesháwar valley, and to hold its own as the official method of expression in concurrence with the local Páli as low down as Mathurá until a much later period. Under these evidences of the spread of Aryan civilization in India, there will be little or no difficulty in admitting that much of what has hitherto been esteemed as purely indigenous knowledge

[1] Max Müller, Sanskrit Literature, p. 13, "Or to convince the English soldier that the same blood was running in his veins and in the veins of the dark Bengalese."

[2] We have indirect evidence to show that this style of writing obtained very early currency in association with the monumental cuneiform. Wherever, in the ancient sculptures, we see two scribes employed—the one using a style and marking a clay tablet, the other writing upon a flexible substance—I assume that the latter is using the cursive Babylonian character, or what has since been conventionally recognized as Phœnician. See also the subject more fully treated, J.R.A.S. iii. (1868) N.S. p. 245; and a notice of the inscription on the Moabite Stone, B.C. 896, v. (1871) p. 410. M. Renan considers it conclusively established that the Jews used Phénico-Babylonien letters at the coming out of Egypt in 1312 B.C. —Langues Sémitiques, pp. 108, 216.

[3] Goldstücker's "Páṇini, his Place in Sanskrit Literature," London, 1861, pp. 12, 227; so also Alwis, Páli Grammar, Colombo, 1861, p. xli; and Colebrooke's Misc. Essays, ii. p. 4. Early Sanskrit Grammars (of "the three Saints")—*Sutra* by Páṇini: rules of grammar in eight books entitled *Aṣhṭá-dhyáya*; comprising 3996 aphorisms. *Várttika* by Kátyáyana, amending or explaining Páṇini's rules. *Mahábháshya* by Patanjali, interpreting or correcting Kátyáyana's annotations.—Colebrooke's Essays, ed. Prof. Cowell, iii. p. 38.

[4] Max Müller, Sanskrit Lit., London, 1859, p. 521; and preface to text of Rig Veda, London, 1862, vol. iv. p. lxxiv. "Yavanáṇi-lipi is most likely that variety of the Semitic alphabet which, previous to Alexander, and previous to Páṇini, became the type of the Indian alphabet." This is so far true of the *Northern* Indian or Bactrian alphabet, but does not apply to the prototype of the local Lát or Indian-Páli characters of Aṣoka and of his *Southern* predecessors.

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may, even thus early, have been improved and matured by the waifs and strays of the discoveries of very distant nations, without in any way detracting from or depreciating the independent originality of local thought, or the true marvels India achieved unaided by foreign teaching.

In illustration of the preceding remarks, and as the necessary definition of the boundaries of the kingdom to which our initial series of coins refer, I transcribe in full a translation of the original passage from Manu. The "orbis veteribus notus" will be seen to be closely circumscribed; and, as I have said before, the ancient seats of the Aryan races are altogether ignored in the general summary.

Manu, ii. 17.[1] "Between the two divine rivers, SARASVATÍ and DRISHADVATÍ [Chitang], lies the tract of land which the sages have named BRAHMÁVARTA, *because it was* frequented by gods. 18. The custom preserved by immemorial tradition in that country, among the four *pure* classes, and among those which are mixed, is called approved usage. 19. KURUKSHETRA [modern Dehli], MATSYA, PANCHÁLA [*Kanyakubja*, Kanauj], and SÚRASENA [or Mathurá], form the region called BRAHMARSHI, distinguished from BRAHMÁVARTA. 20. From a *Bráhman* who was born in that country, let all men on earth learn their several usages. 21. That country which lies between HIMÁVAT and VINDHYA, to the east of VINASANA [where the Sarasvatí disappears in the desert[2]], and to the west of PRAYÁGA [Allahábád], is celebrated by the title of MADHYADEṢA [or *the central region*]. 22. As far as the eastern and as far as the western oceans, between the two mountains just mentioned, lies the tract which the wise have named ARYÁVARTA [or *inhabited by respectable men*]. 23. That land on which the black antelope naturally grazes is held fit for the performance of sacrifices; but the land of MLECHHAS [or *those who speak barbarously*] differs widely from it. 24. Let the three first classes invariably dwell in those before-mentioned countries; but a SÚDRA, distressed for subsistence, may sojourn wherever he chooses."[3]

It is reasonable to infer, as a general rule, that all schemes of weights devised by isolated peoples, developing their own social laws, should primarily be based upon some readily accessible *unit* of limited proportions, rather than upon any higher measure of weight which advancing civilization and authoritative legislation might impose upon the normal datum. Such a metric test was found ready to men's hands in India, in the seed of the Wild Licorice (*Abrus precatorius*), a plant whose habitat was as extended as its produce was uniform and comparatively exempt from desiccation,—advantages which from immemorial time have secured for the local *rati* a representative place amid the adjuncts of the goldsmith's and money-changer's scales.

[1] Sir W. Jones's Works, London, 1799, vol. iii.; Haughton, Hindu Law, 1825, p. 22. [The italics mark the Sanskrit commentator's interpretations of the original text, which is preserved in the translation in Roman letters.] There is also a French translation of Manu by M. Loiseleur Deslongchamps, Paris, 1833.

[2] Muir, Sanskrit Texts, ii. pp. 415–418.

[3] Mr. Muir has given us a new translation of this celebrated passage, which, as it differs from the above in the introductory portion, I append in his own words.

"The tract, fashioned by the gods, which lies between the two divine rivers, Sarasvatí and Drishadvatí, is called Brahmávartta. The usage relating to castes and mixed castes, which has been traditionally received in that country, is called the pure usage. The country of Kurukshetra (in the region of modern Dehli), and of the Matsyas, Panchálas (in the vicinity of modern Kanauj), and Súrasenas (in the district of Mathurá), which adjoins Brahmávartta, is the land of the Brahmarshis (divine Rishis)."—Sanskrit Texts, ii. p. 417.

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The later Sanskrit writers freely conceded its claim to the title of "Balance or Scales seed" (तुलावीज *tulávija*), and the great Akbar, in the sixteenth century, still continued to recognize its position, under one of its ancient names, in the "*red*" (سُرخ *surkh*): for all reductions upon provincial payments of revenue, though, having felt the inconvenience of so inconclusive a test in more exact mint analyses, he ordained that the State trial weights should henceforth be kept in pieces of cut agate.[1]

After the *rati*, in ascending order, appears the *másha*, which, in its acceptance far and near, beyond its Indian home, may almost claim the title of a second *unit*, if not that of a separate *standard*; as such, indeed, its name has come to figure in the indigenous speech as "an elementary weight."[2] In its static sense this measure also owes its parentage to the vegetable world, in the form of a tangible seed, whose properties of permanence are shared with the associate *rati*, in a hard compact texture and a protecting glazed skin. Unlike the wild *rati*, however, this is a cultivated bean, which has hitherto been identified with the *Phaseolus radiatus*; but none of the seeds of this plant, even the most highly developed, at all approach the required weight: so that the representatives of the true *Másh i Hindí* (ماش هندي) had to be sought among other varieties, when the prototype was readily traced in the *Phaseolus vulgaris*, which has disappeared from the north-west of India, to be preserved in the agriculture of the south, where, like other congenial products of the soil, it has the advantage in point of growth over its counterpart of the higher latitude, and even discloses a weight slightly in excess of that demanded by the metallic *silver másha*.

TABLE OF WEIGHTS OF INDIAN PHASEOLI.

					Grains.	
Madras.—*Phaseolus vulgaris*.....	20 seeds	= 70 grains,	average weight		3·5	
,,	20 ,,	77 ,,	,,		3·85	Average 3·625
,,	20 ,,	77 ,,	,,		3·85	
,,	20 ,,	66 ,,	,,		3·3	
Picked specimens mount up to	20 ,,	107·5 ,,	,,		5·37	
Madras... *Phaseolus vulgaris?* Black seeds	20 ,,	134 ,,	,,		6·7	
Red seeds	20 ,,	111 ,,	,,		5·55	
S. India.—*Phaseolus Roxburghii*	40 ,,	46 ,,	,,		1·105	
N. India ,,	20 ,,	10·3 ,,	,,		·515	
,, ,,	20 ,,	10·3 ,,	,,		·515	
Oude.—Bakala, *Faba vulgaris*						
,, ,, Black seeds	20 ,,	96 ,,	,,		4·8	
,, ,, Brown seeds	20 ,,	94 ,,	,,		4·7	
,, Valla, *Lablab vulgaris*...	20 ,,	91 ,,	,,		4·55	

The *másha* is concurrently mentioned as a food grain in Manu (ix. 39); and Prof. Weber remarks, that the name, in its metric sense, is not found in any texts authentically Vedic,[3] though it seems that the term, as applied to pulse, occurs in the Atharva Veda.[4]

[1] "By the command of His Majesty they made grains of agate, which were ordered to be used in weighing."—Ain-i Akbari (Gladwin), i. 40.

[2] Wilson, Glossary of Indian Terms, *sub voce*.

[3] Weber, "Jyotisha," Berlin Academy Tr. 1862, p. 82.

[4] Muir's Sanskrit Texts, vol. v. p. 463.

The Vishṇu Purâṇa notices *másha* as one of the earliest cultivated plants, and one that "may be offered in sacrifice."—Wilson's Vishṇu Purâṇa (edited by Professor Hall.), 1864, page 95.

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I exhibit these necessarily imperfect seed tests merely to demonstrate that there once existed, and still remains amid the produce of the soil, a safe and sufficient foundation for the resulting weights contributed by the metal equivalents, with which we are more immediately concerned.

The next progressional step in the table of weights of silver, though seemingly of a more theoretical character, in the abandonment of the seed test, may after all be found to represent a very practical appeal to some definite and well-understood sum or equivalent of value of prehistoric tradition. The denomination in question is variously styled by the term *dharaṇa* (from धृ *dhṛi*, "to hold"),[1] or by the more suggestive alternative of *puráṇa*, "old," indicating a thing already ancient when Manu's Laws were conceived, and pointing to a period long anterior to the date when the so-termed "Poetical Editor" embodied those Laws in Sanskrit verse. Whether the Aryan designation of *dharaṇa*, as a *quasi*-standard, should be taken to imply finality in the primitive scheme of computation, may be a question; but the closing item in the amplified gold table, to which the same name is given, certainly favours such a conclusion. It is to the surviving representatives of this ancient *puráṇa*, embodying precisely the requisite number of *ratis* of silver, that I shall have to appeal for confirmation of my estimates of weights and as furnishing the earliest specimens extant of Indian money.

The final denomination in the list of silver weights seems to bear a less archaic aspect than the lower gradations of the same series. The multiplication by the decimal *ten* amid the dominant *fours*, which brought it into harmony with an established and identical weight in the gold table, savours of foreign intervention; and the exotic designation of *ṣatamána*, "one hundred measures," equally points to Aryan influences. We can appreciate the motives which induced the northern races to devise the *ṣataraktika*, or "one-hundred rati" piece, out of existing units of value; but it is difficult to divine the object or meaning of "one hundred measures," which do not fit-in with either of the national metric schemes. The specified total of 320 *ratis* is equal to 960 barley-corns. Accepting the latter seed as the natural Aryan *unit*, the $\frac{1}{100}$ part of this sum would be 3·2 *ratis* or 9·6 barley-corns—a broken subdivision, which can only be accounted for by a theoretical rather than a practical assertion of the decimal system, already indicated in the *ten* above adverted to, and the parallel *ten* in the crowning total in the gold series.

Having gone through the metallic items in the table of silver weights, this will, perhaps, be the fittest place to introduce the combined tables of natural products, silver, gold, and copper, from the text of Manu, so as to bring under one connected view the smaller *seed grain* weights, which in the original Sanskrit text are made to originate and lead-up to the larger totals *in metal*, but which I infer to have been in their more minute forms, at least, mere fortuitous subdivisional parts of the central *rati*. The barley-corn may well have claimed an earlier title to the honours of the lesser *unit*; but at the period to which these data refer the local *rati* had clearly established itself as the normal and guiding test of all descriptions of weights.

[1] धृ "to hold, uphold, support," etc.—Wilson, *sub voce*. Secondary meanings extend to, "to weigh in a balance,"—*tulayá dhṛi* (or without the *tulayá*), "to hold in a balance, weigh or measure."—Williams's Sanskrit Dictionary. Hence the progression to a standard of fixed value, or to the more material *dharaṇi*, or "steel-yard," is obvious.

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viii. 131. "Those names of copper, silver, and gold (weights) which are commonly used among men for the purpose of worldly business, I will now comprehensively explain. 132. The very small mote which may be discerned in a sunbeam passing through a lattice is the first of quantities, and men call it a *trasareṇu*. 133. Eight of those *trasareṇus* are supposed equal in weight to one minute poppy-seed (*likhyá*), three of those seeds are equal to one black mustard-seed (*rája-sarshapa*), and three of these last to a white mustard-seed (*gaura-sarshapa*). 134. Six white mustard-seeds are equal to a middle-sized barley-corn (*yava*), three such barley-corns to one *kṛishṇala* (or *raktika*), five *kṛishṇalas* of gold are one *másha*, and sixteen such *máshas* one *suvarṇa*. 135. Four *suvarṇas* make a *pala*, ten *palas* a *dharaṇa*, but two *kṛishṇalas* weighed together are considered as one *máshaka*. 136. Sixteen of those *máshakas* are a silver *dharaṇa* (or *puráṇa*), but a copper *kárṣha* is known to be a *paṇa* or *kárshápaṇa*. 137. Ten *dharaṇas* of silver are known by the name of a *ṣatamána*, and the weight of four *suvarṇas* has also the appellation of a *nishka*."[1]

Ancient Indian Weights from Manu (c. viii. § 132, *et seq.*).

Table I. Minor Sub-divisions of the Unit, the Rati.

Estimated weight in grs. Troy.														
·00135	त्रसरेणु *Trasareṇu.*													
·01080	8	„	=	1	लिख्या or लिक्षा *Likhyá* or *Likshá.*									
·03240	24	„	=	3	„	=	1	राजसर्षप *Rája-sarshapa.*						
·0972	72	„	=	9	„	=	3	„	=	1	गौरसर्षप *Gaura-sarshapa.*			
·5833	432	„	=	54	„	=	18	„	=	6	„	=	1	यव *Yava.*
1·75	1296	„	=	162	„	=	54	„	=	18	„	=	3	„ = 1 कृष्णल *Kṛishṇala* or *Rati.*

Table II. Ascending Increase upon the Unit.

Estimated weight in grs. Troy.

Silver.

3·5	2	रति *Rati.*	=	1	माषक *Máshaka.*									
56·0	32	„	=	16	„	=	1	धरण or पुराण *Dharaṇa* or *Puráṇa.*						
560·0	320	„	=	160	„	=	10	„	„	=	1	शतमान *Ṣatamána.*		

Gold.

8·75	5	रति *Rati.*	=	1	माष *Másha.*									
140·0	80	„	=	16	„	=	1	सुवर्ण *Suvarṇa.*						
560·0	320	„	=	64	„	=	4	„	=	1	पल or निष्क *Pala* or *Nishka.*			
5600·0	3200	„	=	640	„	=	40	„	=	10	„	„	=	1 धरण *Dharaṇa.*

Copper.

140·0	80	रति *Rati.*	=	1	कार्षापण *Kárshápaṇa.*									

[1] Hindu Law, or the Ordinances of Manu, by G. C. Haughton, London, 1825, and Works of Sir W. Jones, London, 1799, vol. iii. Haughton's translation has been slightly modified as given above by my friend Mr. John Muir.

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The insertion of the smaller kinds of seed grains in the above table might, at first sight, appear to have been pedantic and purposeless; but in an essentially poor country infinitesimal atoms of gold, gold dust, or silver in like minute proportions, entered largely into the dealings of a people just emerging from the primitive phase of barter. And we may intuitively realize the early use, and indeed the necessity, of such very small change, in the fact that, within our own times, local rulers have continued to issue pieces of money but little removed from what we term spangles.[1] With these diminutive seeds at his command, the untutored villager had only to arm himself with the produce of his own fields, to check the deficiency in the fraudulent goldsmith's tale of weight,[2] or the merciless discount of the money-changer on the wear and depreciation of the currency.[3]

In a land where official standards must have been exceptional and difficult of access, the ready definition of denominations and interchangeable counterpoises, afforded by the seeds of the earth, must have proved next to invaluable; hence we find, in the elaboration of these criteria *inter se*, that white mustard had to testify against black, while poppy-seed effected a prompt subdivision of either, and the *average* barley-corn checked and determined the integrity of the *rati*, which again might be used, in its turn, to provide for the sufficiency of the *másha*; so that repeated averages of even such seemingly untrustworthy data might after all produce comparatively crucial results.[4]

[1] The minute gold coins of the south, called by the Muhammadans اختر زر "gold stars," are described by Sir W. Elliot as "just like little scales of gold."—Pathán Kings of Dehli, p. 170; Elliot's Historians, iii. 158. The subdivisional silver currency of Nipál runs into flakes about the diameter of our pea, and but little thicker than the paper this is printed on. The Multán gold rupee is a recent example of diminutive money.

[2] "But the most pernicious of all deceivers is a goldsmith who commits frauds: the king shall order him to be cut piecemeal with razors."—Manu, ix. 292.

"It is notorious that goldsmiths use one set of seeds for buying, and another for selling."—Jervis, Weights of the Konkan, p. 39. For the curious penalties assigned for trade frauds in later days, see my Pathán Kings of Dehli, p. 164; Elliot's Historians, iii. p. 197. It would startle some of our enterprising purveyors to have to make up their deficient weights by flesh mercifully cut from "their buttocks."

[3] Tavernier, speaking of the Indian *serráf* of the seventeenth century, says, "All the Jews that deal in money and exchange in the empire of the *Grand Seignior* are accounted a most subtil sort of people. But in the *Indies* they would be scarcely thought fit to be apprentices to these bankers."—p. 22, edit. of 1677.

[4] I do not wish to interrupt the independent course of the argument on the ancient data by introducing extraneous and possibly more modern elements into the text; but a reference to the customs of the southern nations of India is instructive in showing that they also relied upon the competency of seeds to secure a good average, and equally that they selected those food grains which were ever ready to their hands in the ordinary cultivation of the soil.

"The following is a table of such ancient weights as are still the basis of the small weights now prevalent throughout India.

2 châwal [husked rice] = 1 dhán = [rice in husk].
8 ,, ,, = 4 ,, = 1 rati.
16 ,, ,, = 8 ,, = 2 ,, = 1 valla.
64 ,, ,, = 32 ,, = 8 ,, = 4 ,, = 1 másha.

Later weights.

(96 ratis, or 48 vallas, or 12 máshas = 1 tola).

The table of higher weights is as follows:—

2 châwal = 1 dhán, *yava*, or grain of wheat.
8 ,, = 4 ,, = 1 rati.
64 ,, = 32 ,, = 8 ,, = 1 másha.
256 ,, = 128 ,, = 32 ,, = 4 ,, = 1 tank.

Later additions.

(9 tanks = $\frac{1}{8}$ ser, 18 = $\frac{1}{4}$, 36 = $\frac{1}{2}$, and 72 = 1 *ser*.

40 sers of 26 tolahs = 1 man, 20 mans = 1 khandi, or 560 lbs. avoirdupoise)."—Capt. T. B. Jervis, Weights of India, Bombay, 1836, p. 50. [The *chow* or châwal is incidentally stated to be a very "constant quantity"; and it is further mentioned that "the large weights in most provinces conform to the weights of coins most in repute, and which form the general medium of commerce."—p. 51.]

"That the weights of the principal current coins of account, which are synonymous with and equivalent to the corresponding weights used in commerce, are raised alike from the weight of certain vegetable grains or seeds, such as those of wheat, barley, rice, or the Abrus."—Jervis, p. 261.

General Cunningham has tested in a comprehensive manner several varieties of Indian seed weights, with the subjoined results. The average weights are higher than I should have anticipated; but the locality of growth, richness of soil, freshness of the seed, might all affect the general return. However, as the author accepts my average of 1·75 for the practical working weight of the *rati*, I need not stop to discuss his minor details.

	Grains.	Value of Each.	Ratis in grains.
1000 rice seeds	358·5	0·3585 × 5	= 1·7925
700 barley-corns, husked...	418·5	0·5978 × 3	= 1·7934
500 máshaka, small beans	1791·0	3·5820 ÷ 2	= 1·7910
60 bákala, common beans	546·0	9·1000 ÷ 5	= 1·8200
10 másha, black beans ...	146·0	14·6000 ÷ 8	= 1·8250

—Numismatic Chronicle, 1873, p. 197.

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The aborigines, or their early successors, having exhausted the natural products of the soil in the descending scale, the hand of the intruder may be traced in the fanciful addition of the microscopic form of a "very small mote, which may be discerned in a sunbeam passing through a lattice,"—the prototype of Professor Tyndall's "dust,"[1]—whose impalpable elements are still further reduced, in later Brahmanical writings, by several degrees.[2] No attempt, however, seems to have been made by the Aryans to vary or enlarge the seed verifications of the earlier settlers; indeed, when tried by the test of the hymns of the Rig Veda, they would seem to have been very ill versed in the mysteries of the *Flora Indica*,[3] an extensive knowledge of which was clearly necessary for, and is evidenced in, the formation of the normal scale of proportions; and consistently we find that, although the Vedic Aryans often invoked their gods to aid their agriculture, the result so little availed them that their efforts in that direction were chiefly confined to the primitive barley, in the raising of which even they do not seem to have been uniformly successful.[4]

It will be seen at a glance that the gold and copper tables in the present series follow a different system to that of the silver weights, the only points of absolute contact being the *rati* basis and the incorporated *pala* or *nishka*, which is introduced into the silver table under another and inappropriate name. The copper denominations are identical with those of the gold only in the 80 *rati* measure common to each, which, however, is differently divided in the two instances, going at once into $\frac{1}{16}$ in the gold calculations, but descending by $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, to the parallel $\frac{1}{16}$ or five *ratis* in the subdivisions of the lower metal. The first deduction suggested by these facts would be, that inasmuch as a crude scheme of exchange in copper probably preceded any effort at a silver currency, the copper and gold weights should take priority in point of date over the associated silver series; but such an inference is not supported by the positive evidence available, which establishes, in a distinct manner, that there were pieces of copper of identical form and fabric with the silver-punch

[1] "Solar light in passing through a dark room reveals its track by illuminating the dust floating in the air. 'The sun,' says Daniel Culverwell, 'discovers atomes, though they be invisible by candle light, and makes them dance naked in his beams.'"—Dust and Disease, p. 291, published in "Fragments of Science," by John Tyndall. London, 1871.

[2] "Writers on medicine proceed a step further, and affirm that a *trasareṇu* contains 30 *paramáṇu* or atoms," elsewhere "86 *trasareṇus* or *vanśis*" are stated to be "equal to 1 *marichi* or sensible portion of light," six of which go to the black mustard seed. The Márkaṇḍeya Puráṇa gives 64 *paramáṇus* to the *trasareṇu*.—Colebrooke's Essays, i. pp. 528–530, 538.

[3] Mr. Muir's exhaustive researches only produce the following meagre list: "Fruit (*phala*) is mentioned in the Rig Veda, i. 146, 5; iii. 45, 4. Plants (*oshadhi*, *vírudh*) are frequently alluded to, and are even invoked (vi. 49, 14; vii. 34, 23, and 35, 5; x. 97, 1), where some of them are spoken of as produced three ages before the gods; and are said to be divine (*deviḥ*), x. 97, 4. Some of them flowering and productive and fruit-bearing, and others not."—Muir, Sanskrit Texts, v. p. 463.

[4] Wilson's Rig Veda, i. pp. xli, lvii; and iii. p. xi.

Mr. John Muir, with his usual care and completeness, has collected the entire series of Vedic references to seeds in the subjoined passage:—"In the Rig Veda (i. 23, 15; i. 66, 3; i. 117, 21, etc.) frequent mention is made of *yava*, which in later Sanskrit means barley; but according to the Lexicon of Messrs. Böhtlingk and Roth, *s.v.*, appears to have, in early times, denoted corn in general. Rice (*vríhi*), according to the same authority, is not referred to in the Rig Veda, but is named in the Atharva Veda, as well as barley and *máśha* (beans) and *tila* (*Sesamum orientale*); see vi. 14, 2. Parched corn (*dhánd*) is mentioned in several places of the Rig Veda as an offering to the gods, and in iii. 35, 7, is said to be provided as food for Indra's horses."—Sanskrit Texts, v. p. 463.

With all due deference to my friend Mr. Muir and his Professors, there can be little doubt but that the word *yava* (*jau*), on the plateaus of Central Asia and the slopes of the Himálaya, preferentially implied barley, and not wheat. The parched barley, *sattú* (*chumpa*), of millions of living men still testifies to its inherited use. Prof. Wilson consistently insisted upon the meaning of the word as *barley*, and especially in the last volume of the Rig Veda (iii. 1, 4) he lived to edit, where Indra's horses are said to be fed upon "suitable grains," that is, according to the scholiast, fried barley, *bhrishṭayaván*.

Huc, Voyage dans le Thibet, speaks of "la principale récolte est en *Tsing-kou* ou orge noire, dont ou fait le *tsamba*, base alimentaire de toute la population thibetaine, riche ou pauvre."—ii. p. 259.

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coins concurrent with the latter. Added to which the claims of this conventional weight of 32 *ratis* (or 56 grains) to remote antiquity are proved by its remaining so much of a fixed institution in the land that it intruded itself amid all the Muhammadan reconstructions, and received full recognition from their rulers as a nominal standard, undisturbed by prior or subsequent changes in the coinage, up to 1450–1488 A.D., at which period Bahlól Lódi had to improvise a new compound copper currency,[1] to supply the denudation of the country of its precious metals by the ruthless plunder of the Mughals under Tímúr at the close of the fourteenth century.[2]

The advance upon the gold *suvarṇa* of 80 *ratis* to the *pala* or *nishka* is made by the local *four*, while the grand total is created, as in the silver table, by the decimal *ten*. This weight of 80 *ratis*, or 140 grains, which we find thus domiciled in India, as a second or alternative standard for gold and for copper under the denomination of *paṇa*, is the measure to which I have alluded as the near counterpart, whether by hazard or design, of the Egyptian *kat*, the data for which latter weight will be found below.[3] But identity in this case by no means necessitates a direct borrowing either on the one part or the other. The Phœnician *drachma*[4] likewise runs sufficiently close upon the 56 grains of the Indian *puráṇa*; but if it can be shown that the latter amount was arrived at *in situ*, by locally cherished figures applied to an indigenous unit, we can afford to disregard mere approximations. However, this question need not be pressed further, as the 140-grain weight, in its tangible form, only appears amid the coinages of India just so long after the period of the first national pieces as should suffice to establish their age and high antiquity; while its transmission from foreign lands at so late a date need not affect the complete independence of the first efforts of the local mind in the direction of monetary exchanges.

In following up the subject of the derivation of names, we discover a much more distinct association with Semitic traditions in the word *nishka*, for which a Sanskrit root has long been

[1] Pathân Kings of Dehli, p. 363.

[2] Ibid, p. 313.

[3] "Ce signe se lit généralement KAT . . la seule preuve directe qu'on ait de la valeur KAT se déduit du groupe RAKATI, RAKOTIS, nom de la bourgade égyptienne au voisinage de laquelle Alexandre fonda la nouvelle capitale de l'Egypte. . . le manque absolu de toute indication d'une mesure inférieure au *Kat* démontrait que ce poids était l'unité inférieure de la série. Le poids de la pierre (Mr. Harris's five *kat* weight) s'est trouvé égal à 698 grains Troy; admettons le chiffre de 700 pour tenir compte. Nous apprenons en outre (from Mr. Harris's papyrus of Ramses III.) que les subdivisions du *Kat* sont de simple fractions de cette mesure, et non des unités d'une mesure plus petite."—M. Chabas, Note sur un poids Egyptien, Revue Archéologique (Paris, 1861), p. 15. (The *outen* was of the value of ten *kat*.)

I annex an interesting account of another very ancient Egyptian weight from the pages of *Nature*. "The grey granite ball has a mean diameter of $2\frac{3}{4}$ inches. Its form is that of an orange squeezed somewhat out of its natural shape. Its greatest diameter is 2·88 inches, and its least 2·65 inches. Its surface is uneven, and shows no mark of any tool, and it presents the appearance of having been roughly rounded by being shaken in a vessel with other stones. On the surface when found were several white spots of lime or plaster. In this condition it has been accurately weighed in the Standards Department, and its weight was found to be 8,324·97 grains. After this weighing, the lime or plaster was carefully removed and preserved, when the weight of the granite ball was found to be 8,322·4 grains, equivalent to 539·282 metric grammes. It next remained for consideration how far the weight of this granite ball, which must have remained undisturbed in the Great Pyramid for not much less than 4000 years (the date more generally ascribed to the construction of the Great Pyramid being 2200 B.C.), agrees with any of the ancient Egyptian weights. According to Dr. Arbuthnot, as quoted by Dr. Young in his article 'Weights' in the Encyclopædia Britannica, the ancient Egyptian Mina weighed 8,236 English grains, or 532·683 grammes, thus differing not very much from that of the granite ball. But later authorities do not agree with this weight of the Egyptian Mina. According to them the ancient weight nearest to that of the ball is the Babylonian Mina = 544·5 grammes. Prof. Miller, in his account of the New Standard Pound (p. 755), has shown that in frequent instances the Imperial modern pound, or unit of weight, differs very little from, and is therefore derived from, the ancient Egyptian Mina."—*Nature*, Dec. 26, 1872, p. 48.

[4] Mr. Burgon, however, calculated that this weight should be placed as high "as 58 and 59 grains."—Madden, Jewish Coinage, p. 234.

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sought in vain,[1] but which seems to connect itself naturally with נִשְׁקַל "to be weighed" of the Book of Job,[2] an imperfect form of which verb may have passed to the Aryans with the Phœnician letters already adverted to; however, as the Indo-Germanic races were not bound to respect Semitic roots, they seem to have lost the final *l*, and though they may have caught the meaning and retained the vague sound of the word, they do not appear to have imported or had any knowledge of the weight of the Hebrew *shekel* of 220 grains. So that the integrity of the Indian system of weights remains altogether unaffected by the introduction of a second or alternative name of foreign origin to supplant the original *pala*.

If the empire of Darius really extended to the banks of the Indus, in our acceptation of the term, and his Indian revenues were assessed, within the limits of the Satrapy, in Euboic talents, we might anticipate a possible introduction of the weight in question through that channel, which must, in effect, have represented the old trade route in gold, from the eastward, of many previous generations of men; but the difference between 64·5, the estimated *unit* of the Euboic system, and the full 70 grains of the ½ *kársha* of the Indian scheme, or more than $\frac{1}{17}$, is too large a margin in the sale and purchase of so precious a metal to admit of any loose identity in proximate elements of the weight. So that we must look for other possible means of its transmission from the west, and perhaps, like the name of the *nishka*, seek to associate its passage with the downward course of the Aryan migrations, through the highways and byways of the Hindú Kush, when its primary identification with some of the undisturbed systems of the Euphrates valley, newly come out of Egypt, before the age of authoritative debasements,[3] and its reception by the Aryans with the accompanying Phœnician alphabet, may serve to account for its appearance in Northern India. The geographical spread of these copper weights is not by any means confined to the intersecting Aryan track, as we have indications of their presence in Arachosia, in the earliest Greek coins of Pantaleon;[4] mention of their currency in the grants and inscriptions of the western coast of India; and frequent reference to their uses in Ceylon.

As ethnic systems of computation and the ruling distribution of numbers are calculated to throw light upon the identities and derivation of weights and measures, it may be useful to compare some of the more ancient methods of procedure. The Egyptians seem to have delighted in vulgar fractions, theoretically dividing the whole number into every possible combination of fractions; but they evinced no preference for *fours*, and definitely accepted the *ten* for the higher estimates.[5] The

[1] "Nishka is a weight of gold, or gold in general, and it certainly has no satisfactory etymology in Sanskrit. Nothing seems more likely than that it should be derived from Kanishka, the Sanskrit name of Kanerki."—Max Müller, Sanskrit Literature, p. 332.

[2] vi. 2. Ezra viii. 25. Root שָׁקַל "to weigh." The Arabic makes it ثقل, hence مثقال *miśkál*.

[3] We must guard ourselves in these matters by the reservation of a possible difference between commercial weights and authoritative official definitions. Mr. Grote has given us a remarkable instance of trade utterly disregarding the action of the ruling power. "It is ascertained, not merely by the evidence of Dardanus, but by the still more incontrovertible testimony of a published Athenian inscription, that the 'great Athenian talent and mina' continued in exclusive use at Athens, *as weights*, for several centuries after Solon,—that the debasement introduced by that legislator applied only to the coins, drachmæ, obols and their multiples, together with the mina and talent considered as pecuniary denominations apart from actual weight."—Minor Works of George Grote, 1873, p. 114.

[4] General Cunningham gives the weights of the copper coins of Pantaleon at 138 grs., those of Eukratides variously at 137·19, 138·28, 140·24.—Numismatic Chronicle, 1873, p. 217.

[5] Dr. Birch, Unpublished Documents and the Harris Papyrus.

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Accad Túránians, on the other hand, to judge by the numbers preserved in the traditions of the land,[1] seem to have had a decided leaning towards *fours*, though, as we learn from the Assyrian translations of their earlier documents, they attached singular importance to the number of *seven*.[2] The Assyrian system was essentially sexagesimal,[3] so that it has been laid "down as a law" for Mesopotamian metrology, that "all the older systems are divisible by either 6,000 or 3,600. The 6,000th or 3,600th part of the talent is a divisor of all higher weights and coins, and a multiple of all lower weights and coins, except its $\frac{2}{3}$rds."[4]

The sixes and sixties of the banks of the Euphrates[5] find no counterpart to the southward of the Sewálik range beyond the inevitable *ten* and its necessarily included half, *five*. The Indian system, like all else pertaining to it, had its own independently devised multiple, the *four*. Whether the first suggestion of this favourite number was derived from the four fingers of the hand, or the more suggestive four-footed beasts,[6] we need not pause to inquire; but the Indians have at all times displayed an unprecedented faculty for figures, and were from the first able to manipulate complicated arithmetical problems, and especially delighted in fabulous totals; but with all this they have ever evinced their allegiance to the old four, which we find in its place of honour in the earliest extant writings and inscriptions. As the nations of the west, to meet their own wants, speedily produced a separate symbol for *five*,[7] and abbreviated the five perpendicular strokes of the Phœnician into

[1] Rawlinson's Ancient Monarchies, ii. 325. "The King calls himself King of the four regions. . . The mention of four districts is curious, since the same number was from the first affected by the Chaldæans." i. 19. "In each of these districts we have a sort of tetrarchy or special pre-eminence of fours." See also Sir H. Rawlinson, J.R.A.S. i. p. 193, *Arba-il*, "the four gods." See further the list of *fours* given under "Numbers in Scripture," in Smith's Dictionary of the Bible; and the *fours* in Cruden's Concordance, Moses of Khorene Geography, p. 363, and History of Armenia, i. p. 6.

[2] See *Fraser's Magazine*, article by the Rev. A. H. Sayce, June, 1874, p. 709. "The song of seven spirits" (Fox Talbot). The seven spirits were "the guardians of the planets and of the week."

> "Seven they (are), seven they are.
> In the splendour of heaven seven they (are).
> Seven they (are), seven they (are),
> Seven twice again they (are)."

Note also the "seven-headed serpent," etc. "The seven gates of Hades," in Ishtar's descent to the infernal regions. Tablet in the British Museum, translated by Fox Talbot. Records of the Past, pp. 146–7. See also Fox Talbot, Journ. R. Soc. Literature, pp. 249, 251. Symbolic numbers in Scripture. The Rev. W. L. Bevan, in Smith's Dictionary of the Bible, remarks, "Three, four, seven, twelve, and forty are 'symbolic signs'; but seven so far surpasses the rest, both in the frequency with which it recurs, and in the importance of the objects with which it is associated, that it may fairly be termed the *representative* symbolic number."

[3] Weights and Moneys of Assyria (by the Rev. A. H. Sayce).

8 ig or "royal shekels" ..... =1 shekel (12dts.).
60 shekels .... =1 mana-gina (1lb. 4oz. 8dts.).
2 mana-gina (standard manehs) =1 maneh (2lbs. 8oz. 16dts.).
30 manehs .... =1 talent (82lbs.).

"The contract tablets variously give 1 talent of silver as equivalent to 5 manehs of gold, 5 manehs of silver to 2 manehs of gold, 10 manehs of silver to 1 maneh of gold."—Records of the Past, 1873, p. 166.

[4] Mr. R. S. Poole, of the British Museum, has favoured me with the subjoined revised list of the ancient metric systems of the West:

	Grains.	Divisional Scale.	Authoritative Unit.	Practical Unit. Coins.
Hebrew Gold (dbl.)	1,320,000	÷ 100 ÷ 100	=132 gr.	
,, Silver . .	660,000	÷3000	=220	220 shekel.
Babylonian (full) .	959,040	÷ 60 ÷ 120	=133·2	[126·7] 84·5
		or ÷ 60 ÷ 60	=266·4	[siglos.
,, lesser	479,520	÷ 60 ÷ 60	=133·2	
Persian Gold . .	399,600	÷3000 ÷	=133·2	129 Daric
Egyptian ,, . .	840,000	÷ 600 ÷ 10	=140	140 Ket.
Æginetan . . .	660,000	÷ 60 ÷100	=110	110
Attic (commercial).	598,800	÷ 60 ÷100	= 99·8	
,, (lowered). .	558,900	÷ 60 ÷100	= 93·1	92·3
,, (Solonian) .	430,260[	÷ 60 ÷100	= 71·7]	67·5
,, (ditto double)	860,520	÷ 120 ÷100	= 71·7	
,, (ditto lowered)	405,000	÷ 60 ÷100	= 67·5	
Euboïc	387,000[	÷6000 ÷	= 64·5]	

[5] Sir H. Rawlinson on the Babylonian Sexagesimal Notation, Journ. Roy. As. Soc. xv. p. 217.

[6] पद् *pada*, पाद् *páda*, "a foot, a fourth," पा *pá*, "a foot," पाई *pái*, "a quarter," پاؤ, etc. पादः *pádah* (in Hindu law), "four stages of a law-suit."—Haug, Brahmanism, etc. (Poonah, 1863), p. 9. The Scythic name for *four* is given as *nil* or *nal*, "the analogy of which to the Drávidian *nál* or *nal* is very remarkable."—Caldwell, p. 274.

[7] Gesenius, p. 88; M. Pihan, Signes de Numération usités chez les Peuples Orientaux, Paris, 1860, p. 167; and, quoting Oppert, p. 165.

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+ and the Palmyrene *y*; the Indians, apart from their indigenous Páli signs for four, simplified the tedious repetition of the four lines the Bactrian writing had brought with it from Mesopotamia, as seen on Aṣoka's inscription at Kapurdigiri,[1] into a cross like a Roman X, which was doubled to form eight, while they left the five utterly uncared for, to follow in a measure the original Phœnician method of IX, or 4 plus 1=5.[2] Of course the Indian table of weights had to have its lower proportionate atoms accommodated to the weights actually pertaining to the seeds in each instance, but the higher gradations are uniformly grounded upon fours and tens; and to show how distinctly the idea of working by fours was fixed in the minds of men, we find the gradational system of fines in Manu (viii. 337) progressively stated as "8, 16, 32, 64," and *twice* 64; while the exotic element betrays itself, in the distribution of the civil administration, in the "Lords of 10, 20, 100, and 1000 towns," and in "the larger fines which rise from 50 and 100 to 500 and 1000 paṇas." These contrasts are still more distinctly marked in the later legislation disclosed in Yájnavalkya's Dharma Ṣástra, though so many of the old penalties are copied from Manu and remain as before, the tendency towards decimal reckoning is patent in all the new fines, etc. So much for the antiquarian evidences; and to prove the custom at the other extreme of the chain of testimony, and its survival within a nation of almost Chinese fixity, it may be asserted that the whole arithmetic of the masses for whose forefathers these laws were enacted, is primarily based on *gandas* or "fours";[3] and in the modern bazárs of India the unlettered cultivator may any day be seen having a complicated account demonstrated to him by the aid of a series of *fours*, represented, as the case may be, by cowrie shells, seeds of pulse, or other ready reckoners; but the contrast may be completed by inquiring if the most ardent advocate of Aryan supremacy can advance any title for that section of the human race to a speciality in *fours*.[4]

Among other very favourite numbers among the Indians, and one which seems to appertain to

[1] Journ. Roy. As. Soc. xii. p. 225, *Antiyokena chaturo* | | | | *rajano*, "the four kings," Antiochus, Ptolemy, Magas, and Alexander.

[2] Journal Royal Asiatic Society, xix. p. 12.

[3] "A Ganḍa is equivalent to four Kaurís, 'to count by *Ganḍas*' signifies to count by fours, or by the quaternary scale, to which the natives are very partial,—in the same way as to count by *gahís* or *panjas*, is to count by fives, or by the quinary scale. As four Kaurís make one Ganḍá, so do twenty Ganḍás make one Pan, and sixteen Pans make one Kaháwan. But there are grades of monetary value even below that of Kauŕí; for the Hindus seem as fond of dealing with these infinitesimal quantities as they are with the higher numbers, as exemplified in the article Karor. Thus 3 Krant, or 4 Kak, or 5 Bat, or 9 Dant, or 27 Jau, or 32 Dar, or 80 Til, or 800 Sano, are each equivalent to one Kauŕí. These are not in practical use in the N.W. Provinces, but are entered in several account books, and many of them appear to be employed in the bazár transactions of Kattak and parts of Bengal."—Elliot's Glossary of Indian Terms, ii. p. 315. The Editor, Mr. Beames, adds, "These minute amounts are of great and constantly occurring use in calculating the shares of proprietors in the enormous Zamíndáris in Bihár and Bengal under the perpetual settlement. Each estate, however large, being considered for purposes of partition as one rupee, a person whose share is only two or three kránts may have an interest in the estate equal to several thousand acres, and worth many lakhs of rupees." Dr. W. W. Hunter gives an instance of the aboriginal uses of *four*. It seems that among the Santals and other lower classes in Bengal "they employ a curious word signifying $\frac{1}{4}$ less. Thus instead of saying $2\frac{3}{4}$ they say $\frac{1}{4}$ less 3, . . . in Bengali *pouu-e*, '$\frac{1}{4}$ less,' Santali *pou-e*, 'four.'"—Rural Bengal, p. 177. But this is merely one of the essentials of vernacular Hindústáni, where we have پونی $\frac{1}{4}$ less, and سَوا $\frac{1}{4}$ more, which is extended beyond the units into hundreds and thousands, as $100-\frac{1}{4}=75$, and $1000+\frac{1}{4}=1250$. Mr. Caldwell remarks, "It is a characteristic of the Scythian languages that they use for 8 and 9 compounds which signify 10—2 and 10—1. In some instances an original uncompounded word is used for 8, but 9 is always a compound."—p. 281.

[4] M. Pictet, who has so laboriously collected all and everything pertaining to the early development of Aryan civilization in his Paléontologie Linguistique, does not even notice the number. Speaking of the Sanskrit *four*, Bopp remarks, "S'il en était ainsi, il serait littéralement exact de dire que nos ancêtres ne surent compter que jusqu'à trois, et que, dès le nombre quatre, ils ont recouru à une addition (1+3). A son tour, cinq contiendrait quatre."—Bopp, edit. Bréal, Paris, 1859, p. xxi.

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the very earliest traditions of agricultural communities, is 84 (7×12). The *Chaurási* (चौरासी vulgo *Chár-assi*) or groups of 84 villages, like our *hundreds*, abound among the aboriginal divisions of the N. West of India. The number was largely affected by the Buddhists; indeed, everything good or holy seems to have required eighty-four repetitions.[1] In this case the coincidence with the mystic astronomical numbers of the Accad or Chaldæan system is most striking, and can scarcely have been fortuitous. As the dwellers on the Euphrates invoked the sacred numbers of the seven spirits and the Zodiacal 12,[2] so the Vedic Aryans, *in India*, appealed to the seven horses and the 12-spoked wheel of the Sun (*Áditya*).[3]

Having gone through the data supplied by Manu, we may now refer to the next succeeding authority on Hindu law, the Dharma Ṣástra of Yájnavalkya, whose date is attributed to a period shortly before Vikramáditya, or from B.C. 57 to 50 A.D.[4] His tables are nearly identical with those already quoted,[5] one unimportant but possible variant being the assignment of three white mustard seeds instead of six to the barley-corn. There are some apparent contradictions and complications regarding *palas* and *suvarṇas*, but no additional information is afforded respecting the weight of the copper-measure of value, which is described in Dr. Roer's translation, equally vaguely with Manu's text, as, "a copper *paṇa* is of the weight of a *kárṣha*," and as the English editor justly observes, the tables "by no means satisfactorily define the intrinsic weight and signification of the *paṇa*, which, as the measure of pecuniary penalty," would naturally be of the greatest importance. It is to be remarked that neither Manu nor Yájnavalkya refer in any way to the *cowrie-shell* currency, which was clearly in these days a seaboard circulation, unheard of in the North-west; nor is any mention made of the तोल *tola*, which now plays so leading a part in Indian metrology. Neither is

[1] See the exhaustive article on this number in Sir H. Elliot's Glossary of Indian Terms, *sub voce*. Sir H. Elliot sums up his remarks on *Chaurásis* with additional information derived from his own local experience, to the effect that "this is not the place to enter, as fully as the interesting nature of the subject demands, into the inquiry when *Chaurásis* were first introduced into the mythology and administrative details of India; but it is obvious to remark that the Buddhists and Jains are more partial to the number than the Brahmans; and that the Rájpúts, . . . as well as their congeners the Gújars and Jats, more particularly affect that number than any other tribes at present found in occupation of the soil."

[2] The Rev. A. H. Sayce, *Fraser's Magazine*, p. 707, "Accad months arranged astronomically formed the Zodiac."

[3] Wilson, Rig Veda, vol. ii. p. 125 (ii. iii. 8), again, p. 127. "The seven who preside over this seven-wheeled chariot (are) the seven horses who draw it; seven sisters ride in it together (rays of the sun?), and in it are deposited the seven forms of utterance." I have advisedly emphasized the words *in India* in the text above, as the *Súkta*, in which the foregoing passage occurs, associates it with addresses to *Sarasvatí* (stanzas 49, 52). See also Mr. Muir's summary of the Vedic notices of Sarasvatí, J.R.A.S. ii. p. 18; and later references to the town of Sarsuti, in my Pathán Kings, p. 295. We may contrast this combination of numbers with the *true* Aryan conception, held alike by Vedic and Iranian writers, of the 33 *Devas* of the former and the 33 *ratus* of the latter; regarding which Prof. Haug remarks, "We may gather with a certain reason, that it was a time-hallowed formula only to count divine things, its bearing and import being not more understood at all (sic) by the Iranians after their separation from the Brahmans."—M. Haug, Literature of the Parsees (Bombay, 1862), p. 233. See also Muir, J.R.A.S. N.S. i. p. 263. Max Müller, in speaking of numbers in his new translation of the Rig Veda, London, 1869, i. 240, remarks, "To say that seven is a solemn or sacred number is to say very little, for however solemn or sacred that number may be elsewhere, it is not more sacred than any other number in the Veda. . . All these do not prove that the number of 7 was more sacred than the number 1 or 3 or 5 or 10 used in the Veda in a very similar way."

[4] Lassen, Ind. Alt. ii. pp. 374, 470, 510; Dr. Roer, Translation of Yájnavalkya, Calcutta, 1859, p. 11; M. Müller, Sanskrit Literature, p. 330; Stenzler assigns the work to the second century A.D.

[5] Sec. 362. Five krishnala berries = 1 másha, 16 máshas = 1 suvarṇa. "Sec. 363. A pala is 4 or 5 suvarṇas. Two krishnalas are a silver másha; 16 of the latter a dharaṇa. Sec. 364. A ṣatamána and a pala are each equal to 10 dharaṇas; a *nishka* is 4 suvarṇas." . . Note. "In the corresponding *slokas* of Manu, 10 palas are said to be equivalent to 1 dharaṇa. We can only reconcile this by supposing Manu to refer to a gold *pala*, and Yájnavalkya to a silver *pala*. The Sanskrit commentator adds, under *Copper*, 4 kárshas = 1 pala, 1 paṇa = kásha, *i.e.* ¼ pala."

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the now omnipotent *rupee* ever heard of,[1] which is readily accounted for by the fact that these latter were true Aryan words, whose incorporation into the speech of the country at large was not effected till a later date. So much for the weights and their relative proportions *inter se*. I shall defer any examination of the corresponding equivalents in the English standard till I can apply the results to the extant coins of the period.

Before taking leave of this division of the subject, I am anxious to meet, in anticipation, an objection which may possibly strike philologists as hostile to the general position I have sought to maintain in this Essay; inasmuch as it may be held that the fact of the several divisions of the static tables being expressed in Sanskrit words should, *primâ facie*, imply that the Sanskrit-speaking "Aryans" originated the system upon which the gradational scales were based. But it must be remembered that the entire work from whence these data are derived is written in the Sanskrit language, its very exotic character justifying the inference that it was so embodied, not with a view to vulgar use, but for the purposes of a superiorly educated, or, more probably, of an exclusive class. Moreover, it is to be borne in mind that the speech itself, though foreign, had for many centuries been partially introduced into the land, and constituted the chosen means of expression of the dominant religious and occasional temporal authority. But apart from these considerations, there remains to me the more comprehensive question as to how much the Sanskrit tongue of our modern dictionaries, at this time undergoing the process of elaboration and grammatical definition[2] on Indian soil, was indebted to the local speech? It can be shown from sound palæographic, as well as from philological testimony, that the intermingling Aryans borrowed Drávidian letters to improve their *then* imperfect alphabet,[3] adopted Drávidian words till lately

[1] Note 3, p. 39, *infrà*. If the impressed *rúpa* "form" came gradually to be applied to silver itself, silver punch-marked coins ought to have preceded the application of the term to that metal.

तुल *tul*, "to lift up" (*i.e.* to weigh), hence *tolah*.

τλάω, hence τάλαντον, "a balance, a pair of scales."

tollo, "to lift up," Gothic *thûla*.

[2] F. Müller, in the *Academy*, Aug. 15, 1872, p. 319, remarks, "The Sanskrit Lexicon, in particular, which at present, like the Arabian, contains an amalgamation of the most discordant elements."

[3] Norris, Journ. R.A.S. xv. p. 19, The Scythic Version of the Behistun Inscription of Darius: "I will here express my conviction that the sounds called cerebral are peculiar to the Tartar or Finnish class of languages; that the really Indian languages are all of Tartar origin, or, at least, that their phonetic and grammatical affinities are Tartar; and that the writers of Sanskrit adopted the sounds from their Indian neighbours." Caldwell, Drávidian Grammar, pp. 43, 107, 111: "The cerebral consonants are essential component elements of a large number of primitive Drâvidian roots, . . whereas in most cases in Sanskrit, the use of cerebral consonants instead of dentals, and especially the use of the cerebral *ṇ* instead of the dental *n*, is merely euphonic. None of the cerebral consonants have ever been discovered in any of the primitive languages which are related to the Sanskrit."

"Enfin, la classe des linguales ou cérébrales Sanscrites ne se trouve pas en Zend: mais n'est-il pas remarquable qu'on ne la rencontre pas davantage dans les langues de l'Europe que appartiennent à la même famille, et que, parmi les mots indiens où se voient les cérébrales, il en soit passé un si petit nombre dans les idiômes européens? Pour moi, quand je pense au rôle que jouent ces consonnes dans les dialectes du Décan, particulièrement en tamoul et en telougou, et au nombre relativement assez restreint des mots sanscrits que les possèdent, je me persuade qu'elles appartiennent en propre au sol de l'Inde, et que leur origine ne doit pas être cherchée en deçà de l'Indus, dans l'ancienne Arie. Il me paraît qu'elles ont été empruntées par le sanscrit aux dialectes primitifs qu'il rencontra dans l'Inde, et admises par lui dans son alphabet, lorsque les Brahmanes sentirent le besoin de le régulariser et de le mettre en parfaite harmonie avec l'état de la langue."—Bournouf, Yaçna, p. cxlv.

"The third class is called that of the linguals or cerebrals, and embraces a peculiar kind of sounds of *t* together with its nasal; a kind not original, but which has developed itself from the ordinary class of *t* sounds. . . . In the Prákrit this class has obtained great supremacy."—Bopp's Grammar, Wilson and Eastwick, i. p. 14.

"It must be clearly understood . . . that the Devanagari cerebrals were unknown to the language of the (Persian Cuneiform) Inscriptions" (of Darius).—Sir H. Rawlinson, J.R.A.S. x. p. 63.

Hunter's Annals of Rural Bengal (1868), pp. 176, 180, *note*, "According to Schleicher, the Sanskrit alphabet originally consisted of only 15 consonants, and adopted 19 from the aborigines." Prinsep's Essays, ii. p. 151.

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classed as Aryan,[1] and, as has been discovered from the inherent evidence of the Bactrian character, appropriated a very large amount of Indian Páli design in the mechanical construction of the vocalic and other portions of their needfully amplified Semitic system of writing.[2]

These considerations naturally lead to the inquiry whether Drávidian roots do not throw light upon the clearly misunderstood meaning of the passage in Manu, defining the value of a copper *kárshápaṇa*. The result proves that the Tamil *kásu*,[3] corruptly "*cash*," is described as "coin, money in general;" and, among other grammatical details, it is found that *ponakásu*, *vennikásu*, and *pettalaikásu*, still exist as the vernacular terms severally for gold, silver, and copper *coins*, while the corresponding verb *kásadikka* primarily means "to coin." With these hints a new and intelligible translation of the verse in question may be proposed, to the effect that a "*kárshápaṇa* is to be understood (to be) a *coined* (copper) *paṇa*." If this interpretation will stand criticism, we obtain new light on the Indian monetary system, to the effect that the earliest Sanskrit authority on such subjects extant recognizes as an ordinary fact the institution of *coined* money; while the context proves how much of Drávidian civilization still remained in the Upper provinces, and how little competent subsequent Sanskrit commentators on Manu's text were to appreciate anything beyond their own confined views and conventional teachings.

In addition to the above suggestive rectification of the reading of a passage in Manu, tending to prove that coined money was in use at the period of the compilation of the text of India's earliest lawgiver, any question that might have remained on this subject may be satisfactorily set at rest by the testimony of the published Sanskrit version of Yájnavalkya,[4] the commentary on which, known as the *Mitákshará*, defines the *kárshika* as "measured by a kársha" (*kárshenonmita*); while the copper kársha itself is described as *támrasya vikára*, or "copper transformed," *i.e.* worked up from its crude metallic state into some recognized shape.[5] This proves, in the one case, that the interpretation of the term *kársha*, as a *coin*, or fabricated piece of whatever description, is fully authorized; and, in the other, that the copper *kárshápaṇa*, as Manu's text would imply, constituted the ready referee of weight, which its general currency as a coin of the period was calculated to insure. Indeed, it is curious to note how near an adherence to very primitive customs this state of things discloses, in that the original idea of the use of definite and subdivided weights of metal for commercial purposes is still so closely identified with the secondary function these fixed units had come to fulfil in the guise of money, as circulating

[1] Caldwell, p. 438; Muir, Sanskrit Texts, ii. p. 39; Molesworth, Maráṭhí Dictionary, p. xxii.

[2] Num. Chron. 1863, p. 232; Prinsep's Essays, ii. p. 146.

[3] Wilson, Glossary of Indian Terms, *sub voce*. कार्ष *kárshа*, Tamil *kasu*, "cash," Toda *kas*, Chinese *cash*.

[4] Mitákshará, i. 364.

[5] Professor Wilson missed the full force of this explanation in adhering to the old translation of Manu, where "*kárshа* or *paṇa*" are given.—Ariana Antiqua, p. 404; Prinsep's Essays, i. p. 53, note.

Gen. Cunningham, in his late paper on Alexander's Successors (Num. Chron. 1873, p. 198), has strangely overlooked the above explanation (published by me in 1864), and has allowed himself to be misled by the text of the *Lílávatí*, a modern composition of A.D. 1150, into supposing that because the work in question speaks of "16 *paṇas* (of copper) being equal to 1 *dharaṇa* or *kárshа* of silver," that, therefore, the *dharaṇa* WEIGHT was called a "*kárshа*." Whereas his own context from the Amara Kosha shows that there was a "copper *kárshа*," *i.e.* a copper coin, and equally a "*suvarṇa* or golden *kárshа*," which last was simply a *suvarṇa*, or the given weight of gold, in the form of a coin. In short, the weight of 80 *ratis*, as the Ceylon texts (note 4, p. 41, *infrá*) prove, was immutable, and it was employed, without regard to metals, to measure gold, silver, or copper, down the whole western coast.

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measures of value, while they retained their hereditary acceptance as bases of ponderosity.[1] This duality of function remained so essentially associated in the minds of the people, that the revised scales of weights of the British Government, in compliance with local predilections, were adapted and adjusted under a similar system,—the current *Rupee* recommending itself as the initial datum and "foundation of the *Ser* and *Man*,"[2] and as the criterion and handy test of the higher weights.

I must not close this chapter on weights without a momentary reference to scales and balances. It will perhaps be admitted that any such elaborate system of counterpoises of seeds, as we find in operation among the ancient Indians, must *primâ facie* imply a knowledge of the technical appliance of scales, in their fully developed form.[3] To a people whose burthens were habitually slung from the opposite ends of a bambú, and carried on the shoulder, the mechanical advance of first principles into the realization of the balance would demand but slight mental effort.[4] They also, very early in the civilization of their own land, seem to have learnt the use of the steel-yard, an invention which would likewise be self-suggested, in the every-day employment of the irrigation whip and the nice adjustment of the counter-weight, corrected from time to time with crude lumps of clay or mud.[5] As the nation did not take to public epigraphy till Aṣoka taught them to use nature's rocks and boulders, and fashioned monoliths, for the purpose, so their sculptures only present themselves under the auspices of advanced Buddhism in the ornamentation of their sacred edifices. Amid the bas-reliefs surrounding their colossal *stupas*, or tumuli, we observe many of the incidents of home life depicted with contemporary fidelity. At Sánchi (whose sculptures date before our era) we see the rice or corn being passed into a *measure*,[6] but scales or balances do not occur. Among the later sculptures referring to the Buddhist faith at Amarávati,[7] we discover the steel-yard in full operation.[8] We know not what further illustrations may be in store for us in association with the more fully draped figures of Gen. Cunningham's

[1] An early example of the use of the Kárṣha as a weight is given in the Buddhist Legends (Burnouf, Introd. Hist. Bud. p. 258), where one *Kárṣha* weight of sandal-wood is stated to have cost "500 Kárṣhâpanas."

[2] Prinsep's Useful Tables, ii. pp. 95, 104-6; Journ. As. Soc. Bengal, 1834, *Appendix*, p. 61, etc. See also Journ. As. Soc. Bengal, i. p. 445.

[3] Looking back upon the primitive customs of the people, we find that scales were recognized as a positive institution,—in an original way, they formed part of the machinery of justice in trials by "ordeal," where men's condemnation depended upon their gain or loss, at a given interval, in the critical balance.

"Sec. 95. The scales, fire, water, poison, the sacred draught—these are the ordeals for exculpation. . . 98. The scales are (the ordeal) for women, children, aged men, the blind, the lame, Bráhmans, etc. . . 100. When the accused has been placed in the scales by those who understand the art of weighing, a counter weight adjusted and a line drawn. . . 101. 'Oh scales! made by the gods of old, the abode of truth: therefore do ye, propitious ones, declare the truth and liberate me from suspicion! 102. If I be an evil-doer, then bear me down, oh mother! If I be pure, carry me upwards.'"—Yájnavalkya, Röer's translation, Calcutta, 1859. See also Asiatic Researches, i. p. 389, "six minutes' interval"; and Trail's Report on Kumaon, "*Tarázu ka dip*," interval, in modern practice, from night to morning; As. Res. xvi. p. 173.

[4] Fergusson, Tree and Serpent Worship, Sanchi bas-relief, pl. xxxii. fig. 1, p. 130.

[5] The extant instrument of the present day is thus described: "The *Dharni* is a sort of steel-yard, in use not only in Nipál, but in Tibet; it is employed in weighing oil, lumber, ghee, salt, metals, etc., but not grain, and is graduated in a very minute manner. The principal divisions of the scale are the following: The *Dharni*, or extreme degree = 2½ sírs, Bengal weight.

„ *Hummali*, ¾ of a Dharni = 3 sírs of Nipál, each 16 *gaṇdahs*.
„ Bessowli, ½ Dharni.
„ Barchpul, ⅓ „
„ Charpul, ¼ „
„ Authpul, ⅛ „

—Kirkpatrick's Nipál, p. 96.

[6] Fergusson, pl. xxxii.

[7] Supposed to refer to 350 A.D. Fergusson, pp. 72, 253.

[8] Fergusson, pl. lx. fig. 1, and pl. lxxxiii. fig. 1, pp. 194, 224.

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latest discovery of the ruined stupa at Bharahut, where we have the unusual advantage of explanatory headings in writing attached to each scene delineated on the stone.[1]

Measures of Capacity and Length.

The larger range of an investigation into the parallel measures of capacity or measures of length does not fall within the limits of the present inquiry; but some reference to both one and the other may be necessary to determine how far the Indian races are open to the charge of imitation or of borrowing from other nations.

That measures *per se* in the loose interpretation of handfuls (δραχμή), double handfuls (*anjali*), bundles, burthens carried on men's heads, loads of animals, etc., must have been the pioneers of any exact system of weighment, will readily be admitted; and it is curious to remark, that this point

[1] "The most interesting remains are at *Bharahut*, six miles to the north-east of Uchahara, nine miles to the south-east of the Sutna railway station, and 120 miles to the south-west of Allahabad. In our maps the place is called *Bharaod*. It is the site of an old city, which only sixty years ago was covered with a dense jungle. In the midst of this jungle stood a large brick stupa, 68 feet in diameter, surrounded by a stone railing, 88 feet in diameter and nine feet in height. The whole of the stupa has been carried away to build the houses of the present village; but rather more than half of the stone railing still remains. . .

"This colonnade of the Bharahut stupa is of the same age and style as that of the great Sánchi stupa near Bhilsa. But the Sánchi railing is quite plain, while the Bharahut railing is profusely sculptured—every pillar and every rail as well as the whole coping being sculptured on both faces, with an inscription on nearly every stone. From the characters of these inscriptions, as in the similar case of the Sánchi stupa, the erection of the railing must be assigned to the age of Aśoka, or about B.C. 250.

"The inscriptions are mostly records of the gifts of pillars and rails, like those of the Sánchi and other stupas. But there is also a considerable number of descriptive records, or placards, placed either above or below many of the sculptures. These last are extremely valuable, as they will enable us to identify nearly all the principal figures and scenes that are represented in these ancient bas-reliefs.

"Amongst the numerous sculptures at Bharahut there are no naked figures as at Sánchi and at Mathura, but all are well clad, and especially the women, whose heads are generally covered with richly-figured cloths, which may be either muslins, or perhaps brocades or shawls. Most of the figures, both male and female, are also profusely adorned with gold and jewelled ornaments, in many of which one of the most significant Buddhist symbols plays a prominent part. The earrings are mostly of one curious massive pattern which is common to both men and women. The *ankús*, or elephant goad, was also a favourite ornament, which is placed at intervals in the long necklaces of ladies. . . .

"Amongst the scenes represented there are upwards of a dozen of the Buddhist legends called *Játakas*, all of which relate to the former births of Buddha. Luckily these also have their appropriate inscriptions, or descriptive labels, without which I am afraid that their identification would hardly have been possible.

"Of illustrations of the life of Buddha during his last appearance there are some good examples. The earliest of these is a medallion containing Máyá's dream of the white elephant, which is superscribed *Bhagavato Ukdanti*. A second scene belongs to the reign of *Ajáta Satru*, King of Magadha, in the eighth year of whose reign Buddha attained *Nirvána*. This is labelled "*Ajátasata Bhagavato vandate.*—Some of the well-known assemblies of the Buddhists would also appear to be represented, of which one is called the *Jatila Sabha*, of which I know nothing. A second belongs, I think, to a later period of Buddhist history, about midway between the death of Buddha and the reign of Aśoka. This sculpture represents a large assembly, and is duly labelled—

"*Sudhamma Reva Sabha Bhagavato Chudá Mahá.*—The words *Reva Sabha* I take to mean the assembly or synod which was presided over by the famous Buddhist priest Revato just 100 years after the death of Buddha, or in B.C. 378.

"But the Bharahut sculptures are not confined to the legends and events connected with the career of Buddha, as there is at least one bas-relief which illustrates a famous scene in the life of Ráma. . .

"A further examination of the inscriptions, and the receipt of Mr. Beglar's report of the completion of the excavations, have made several very valuable additions to my account of the *Bharahut* sculptures, of which I will now give a brief description.

"A bas-relief, labelled with the name of *Pasenajita*, shows the well-known King of Kosala in a chariot drawn by four horses proceeding to pay his respects to the Buddhist Wheel symbol, which is appropriately named *Bhagavato dhamma chakam.*

"There are also representations of five separate Bodhi Trees of as many different Buddhas, which are distinctly labelled as follows:—

(1). *Bhagavato Vipasino Bodhi*, that is, the Tree of *Vipasyin* or *Vipaswi*, the first of the seven Buddhas.
(2). *Bhagavato Kakusadhasa Bodhi.*
(3). *Bhagavato Konagamans Bodhi.*
(4). *Bhagavato Kasapasa Bodhi.*
(5). *Bhagavato Sakamunino Bodhi.*

"These last are the four well-known Buddhists named *Krakuchhanda, Konágamani, Kásyapa*, and *Sákyamuni.*"—Journ. As. Soc. Bengal, Proceedings for May, 1874, p. 110.

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once reached, with what singular tenacity the natives of India, during the progress and onward course of their civilization, have adhered to the more certain test of weight. So that the old measures have long since been driven into the odd corners of the land,[1] and the living population steadfastly decline to recognize the merits or expediency of a late Government proposal to re-introduce measures of capacity.[2]

With the exception of some incidental references to such estimates in Manu,[3] the earliest record of what may prove to be measures of capacity is preserved in the *Atharva Parisishta*, a work for which very high antiquity is claimed, but which, when tested by the internal evidence of the Table itself, may have to submit to a diminution of its assumed age. The Table speaks of Magadha weights and the intervention of Brahmá in the production of the larger measure of the *droṇa*. As we have seen, at the period of more archaic Vedic literature, the Aryans had not penetrated into Magadha (Bihár),[4] nor had they brought Brahmá himself into the prominence he ultimately secured by the efforts of his votaries. The Table purports to be applicable to the measurement of *ghí* or clarified butter, but it is a very great question whether *ghí* was not ordinarily weighed and not *measured*, in its liquid form, then as now. Besides which the initial item and the ascending gradation to the identical *pala* of 320 *ratis*, as given in the gold table, points to a similar inference; while the higher increments by *fours* has an air of local development, and the final *droṇa* itself of 163,840 *ratis* proves to be a very different weight from the *droṇa* of four *ádhakas* in the ordinary measure series (Table B. *infrà*), which is estimated to weigh only 81,920 *ratis*.

[1] "Another interesting subject on which inquiry should be made is that of the weights and measures of the country, of which many curious specimens are still in daily use to the south of the Jumna. . . The old measures are usually made of joints of bambu, or of brass or of iron, and more rarely of hard wood. . . . The commonest name for one of the smaller measures is *Nali*, which means simply a joint of *bambu*. The metal vessels are usually shaped something like hour-glasses, being narrower in the middle than at the top and bottom. Other names are *Paile* or *Pali*, *Dona* or *Drona*, etc. In the Gangetic provinces these old measures have long ago disappeared."—Gen. Cunningham, Archæological Report for 1871–2, p. xi.

Here is a curious illustration of a lately struggling trade on our Himalayan frontier, which had only partially emancipated itself from rude measures of capacity even in the presence of the civilization of the nineteenth century.

"Grain, salt, borax, etc., are sold by measures of capacity, as follows:

8 Handfuls	make one	*Phúrúwa*.
8 *Phúrúwa*	,,	*De*.
12 *De*	,,	*Dobú* or *Guama*.

Within the Ghats (passes) the articles above named are also calculated by the Karbich or *sheep* saddle-bag, taken at four Nalis. Grain is also computed by the *Lúyattor*, or large [Goat] *Karbich* = 20 *Nalis*; *Swolę*, or basket = 60 *Nalis*; *T'hanch*, or skin = 60 *Nalis*.

"Gold is calculated by the *Sarswo* or *Phetáng* = 7½ *Másas*. Gold dust separated into *Phetángs*, each tied up in a bit of cloth, is current as coin at eight rupees the *Phetáng*. Silver is computed at the *Jyú* or *Temashí* (three *Másas*), and the *Gormá* or current rupee = four *Jyú*. The *Jyú* or *Gangatassi* is coined at Ladakh."—Trail's Report on the Bhotea Mahals of Kumaon, As. Res. xvii. p. 24.

"The people in Spiti (in the Himalayas) have a measure called a *máni* or *thee*, which is a small wooden cup: this is of two sizes, the one used for buying, called *chagreh*, holding 29 lbs. weight of grain; and the other, by which they sell, called *googreh*, which holds only 21 lbs. weight."—Capt. Harcourt's "Kooloo, Lahoul and Spiti," p. 249.

[2] The subjoined confessions on the part of the British Government in 1867, embodied in an official paper by Col. R. Strachey, F.R.S., are significant: "Measures of capacity are hardly known in Northern India. In Bengal and Southern India they are more frequently used, and, as a rule, are intended to be equivalent to certain determinate weights of grain.

"Throughout India the old standard of weight seems almost universally to have been the current coin of the locality, and the multiplicity of [later] coinages has been, and is still, accompanied by an equal or even greater multiplicity of weights. . . The usual lineal measures are the cubit or *hath*, and the yard or *guz*. . . . The *hath* varies from 14 to 20 inches, the *guz* from 28 to 40 inches."

[3] *Kumbhas* of grain are noticed in viii. § 320, with the insertion of (a *kumbha* is 20 *droṇas* and a *droṇa* 200 *palas*); in viii. 397, *palas* of cotton-thread are mentioned.

Colebrooke incidentally remarks (i. p. 536), "The measures of grain in common use are probably derived from the ancient *kumbha* and *droṇa*; but their names are not suggested by any of the preceding tables" [of later date?].

[4] The Ganges seems to have been the limit of Vedic progress: it is only twice mentioned in the sacred texts."—Muir, vol. v. page 388.

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I reproduce the romanized version of the Sanskrit text of the passage relating to these measures, for the satisfaction of those who may desire to follow the original words, and append a tabulated return of the figures contributed by the passage in question, adding, for the purposes of comparison, the sum totals in *ratis* and English grains.

ghṛitapramáṇaṃ vakshyámi, máshakam pañchakṛishṇalam |
máshakáṇi chatuḥshashṭiḥ palam ekaṃ vidhíyate ||
dvátriṅśatpalikam prastham Mágadhaiḥ parikíttitam |
áṭhakaṃ tu chatuḥprastham, caturbhir droṇam áṭhakaiḥ ||
droṇapramáṇaṃ vijneyam brahmaṇá nirmitam purá |
dvádaśábhyadhikair nityam palánám pañchabhiḥ śataiḥ ||

—Weber, Abhandlungen der Akademie der Wissenschaften zu Berlin, 1862, p. 82.

TABLE OF MEASURES (WEIGHTS?) OF GHÍ.

[Estimated weight in grs. Troy.]													
8·75	=	5	Ratis	=	1	Másha.							
560	=	320	,,	=	64	,,	=	1	Pala.				
17,920	=	10,240	,,	=	2,048	,,	=	32	,,	=	1	*Magadha*	Prastha.
71,680	=	40,960	,,	=	8,192	,,	=	128	,,	=	4	,,	=1 Áṭhaka.
286,720	=	163,840	,,	=	32,768	,,	=	512	,,	=	16	,,	=4 ,, =1 Droṇa.

The next collection of documents bearing upon measures comes to us, *longo intervallo*, in the form of a compilation, by a comparatively modern writer, Gopála Bhaṭṭa, embracing all the metric waifs and strays to be found in the later Brahmanical writings dubiously entitled *Puráṇas*.[1]

I subjoin Colebrooke's analysis and summary reconstruction of these data.

On the measures of grain Gopála-bhaṭṭa quotes the authority of several *Puráṇas*. . . . . From these may be formed two Tables. The first coincides with the texts of the *Varáha Puráṇa*, and is preferred by Raghunandana; the second, formed on the concurrent authority of the *Bhavishya*, *Padma*, and *Skanda Puráṇas*, is adopted in the *Kalpataru*.

TABLE A.

8 *mushṭis* (or handfuls)	=	8 *palas* = 4 *prasṛitis*	=	1 *kunchi*.
8 *kunchis*	=	1 *pushkala*.		
4 *pushkalas*	=	1 *áḍhaka*.		
4 *áḍhakas*	=	1 *droṇa*.		
20 *droṇas*	=	1 *kumbha*.		

TABLE B.

[Estimate in Ratis and grains.][2]						
2,240 =	1,280	4 *palas* = 2 *prasṛitis*	=	1 *kudava* or *setaká*	14	*tolas*.
8,960 =	5,120	4 *kudavas*	=	1 *prastha*	56	,,
35,840 =	20,480	4 *prasthas*	=	1 *áḍhaka*	224	,,
143,360 =	81,920	4 *áḍhakas*	=	1 *droṇa*	896	,,
2,867,200 =	1,638,400	20 *droṇas*	=	1½ *khárís*=1 *kumbha*	17,920	,,
28,672,000 =	16,384,000	10 *kumbhas*	=	1 *báha*	1,97,200	,,

[1] Col. Wilford, speaking of the methods of writing history in India, gives an apt illustration of the probable value of the Puráṇas in this direction. "I was acquainted lately, at Benares, with a chronicler of that sort, and in the several conversations I had with him, he candidly acknowledged that he filled up the intermediate spaces between the reigns of famous kings with names at a venture; that he shortened or lengthened their reigns at pleasure; and that it was understood that his predecessors had taken the same liberties. Through their emendations and corrections, you see plainly a total want of historical knowledge and criticism; and sometimes some disingenuity is but too obvious. This is, however, the case with the sections on futurity in the Bhagavat, Váyu, Vishṇu, and Brahmánda Puráṇas; which with the above lists constitute the whole stock of historical knowledge among the Hindús; and the whole might be comprised in a few quarto pages of print."—Asiatic Researches, vol. ix. pp. 132, 133.

[2] Taking the weight of the *pala* at 320 *ratis*, as in the previous tables.

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"I have already quoted a comparison of the *kuḍava* or *setaká*, hod. *ser* [of 1280 ratis, or 2240 grs.], to a practical measure of length; and we learn from the *Lilávatí* [A.D. 1150] that the *khárí* or *khárika* of Magadha should be a cube measured by one cubit: 'A vessel measured by a cubit in every dimension is a *ghanahasta*, which, in Magadha, is called *khárika*; it should be made of twelve corners or angles formed by surfaces (that is, it should be made in the form of a solid with six faces). The *khárika* of Utkala is in general use on the south of the river Godávarí; there the *droṇa* is the sixteenth part of a *khárí*; the *áḍhaka* ¼ of a *droṇa*; the *prastha* ¼ of an *áḍhaka*; and the *kuḍava* ¼ of a *prastha*; but the *kuḍava*, formed like a *ghanahasta*, should be measured by three fingers and a half in every dimension. This vessel must be made of earth or similar materials; for such alone is a *kuḍava*.'"—Colebrooke's Essays, ii. 537.

I avail myself of the opportunity afforded by the concluding extract to caution my readers against the supposition that everything which is embodied in the Sanskrit language is of necessity *old*. We have been entertained occasionally by being told how our Christian religion owes such and such of its leading elements of faith to Buddhist, Brahmanical, or Zoroastrian teachings; but the progress of knowledge now enables us to turn the tables, and to prove that our antagonists were the real borrowers. The Buddhists have been credited with priority over our conception of the Trinity, but the earliest documents of their creed, dating in 250 B.C.,[1] or nearly three centuries after the *Nirvána* of Buddha, neither suggest nor foreshadow any such combination; though we can well conceive how easily their missionaries may have caught the infection of the Aryan devotion to *threes*. And in this respect it is curious to find the first monumental notice of the "oppressive Aryas" in the immediately consecutive declaration of faith embodied in the Bhabra Edict of Aṣoka, which further introduces us to the crude initiation of this most mundane triad, composed of *Buddha, Dharma, Sanga*, "Buddha, the law, and the convocation," or assemblage of mortals, to whom had been delegated the task of defining the authoritative creed of the future![2]

The Brahmans, in their turn, as has lately been discovered, appropriated without limit or scruple, but of course without acknowledgment, the ideas and the very expressions contained in the New Testament: as these transmuted passages were embodied in the text of the *Bhagavad-Gítá*,[3] a work supposed to date as early as the third century A.D., some suspicion might possibly have been

[1] Edicts of Aṣoka, J.R.A.S. xii. (1850), 153, and the Bhabra Edict, xvi. p. 366; Prinsep's Essays, ii. 12–34; J.A.S. Bengal, vii. (1838), pp. 156, 219, and Bhabra Edict, ix. 616.

[2] "King *Piyadasi* (Aṣoka) to the venerable assembly of Magadha. . . . . I proclaim to what extent my respect and favour (are placed) in Buddha, in the law, and in the assembly, ... having overcome the oppressions of the Aryas (*Aliya*) and future perils . . . . (and refuted) the songs of the Múnis, the sútras of the Munis," etc.—Wilson's Translation, J.R.A.S. xvi. p. 366. See also Burnouf, who translates the text by "des facultés surnaturelles des Aryas et les terreurs de l'avenir." The independent facsimile of the original inscription lithographed in Calcutta is clear as to the word अलिय *Aliya*, though the Pandits translate the passage differently.—J.A.S. Bengal, ix. p. 619.

[3] "We can no longer doubt, therefore, the possibility of the hypothesis that the composer of the Bhagavad-Gítá . . . . used Christian ideas and expressions, and transferred sayings of Christ related in the Gospels to Kṛishṇa." The author then proceeds to demonstrate that the composer was acquainted with the writings of the New Testament, and used them as he thought fit, "weaving into his own work numerous passages, if not word for word, yet preserving the meaning and shaping it according to the Indian mode of thought, a fact which till now no one has noticed."—*Indian Antiquary* (October, 1873), Notice from the Appendix of Dr. Lorinser's Bhagavad-Gítá (Breslau, 1869); see also Weber, Indische Studien, i. 400; Lassen, i. 623, iii. 398; T. Wheeler, History of India, i. 407. But more especially do I desire to quote the conclusions arrived at by one of our most advanced Sanskritists, representing the learning of the south, who, in accepting these preliminary proofs, adds, "Patriotic Hindus will hardly like the notion that their greatest modern philosophers borrowed from Christianity; but as they cannot give an historical or credible account of the origin of these Vedantist sects, if we take the above facts into consideration, there is more against them than a strong presumption, for these doctrines were certainly unknown in India in Vedic or Buddhistic times."—Mr. A. Burnell, Madras C. S., *Indian Antiquary*, Sept. 1873, p. 274.

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thrown upon the originality of our received version; but the question of derivation has been comprehensively examined and determined in our favour by Dr. F. Lorinser, whose verdict had already been facilitated by the researches of other eminent Orientalists.

Of all the strange pretensions in this direction to damage our tenets, none appear to be more groundless than the Zoroastrian or Mazdyasan claims of priority in some minor items of faith, though, considering the anomalous nature and very modern period of the reconstruction of the Pehlvi and Zand Texts, we can afford to pass these by without any effort at refutation.[1]

Far more important in its bearing upon the present inquiry, however, is the clear and indubitable evidence of a borrowing on the part of the Sanskrit writers of the Greek system of astronomy, and its incidental following of numbers, methods of computation, etc.[2]

To return to our subject, I conclude that in early times, when systems of weights and measures were in process of adjustment, no discrimination was arrived at between measures of capacity for dry goods and fluid measures.[3] In one instance, at least, it is clear that the old "double-handfuls" were indifferently used for fluids. However improbable it may seem, no one who has admired the perfection of an Indian hand will feel any difficulty about its applicability to this purpose: if the four fingers and the thumb are still competent to play the every-day part of a tube or mouth-

[1] Professor Westergaard, one of our pioneers in the modern study of Zand, and who sought knowledge on Persia's own soil and among her children's children, the Pársis of Bombay, pronounced the Zand-Avesta to be "a modern dung-hill, where you may find ancient pearls."—J.R.A.S. viii. o. s. 351.

M. Michel Breal, so favourably known as the editor of the new edition of Bopp's Comparative Grammar, declares that "la géographie de l'*Avesta* est essentiellement fabuleuse."—Journal Asiatique, 1862, p. 497.

M. Oppert, examining the genuineness of the Zand texts from another point of view, has satisfactorily established, on the evidence of the alphabet itself, that the writings, in the form we now have them, must necessarily be of comparatively modern date.—Journal Asiatique, 1851, p. 281.

As for the Pehlvi versions of the sacred books, Grammars and Dictionaries for which have been reconstructed with so much ingenuity, it may be enough to say that, unlike the recovered Sanskrit, they altogether fail to interpret or reveal the tenor of the ancient inscriptions in the original tongue. Indeed it is almost a case of the blind leading the blind. Anquetil du Perron learnt his first lesson in Pehlvi from the ignorant descendants of the fugitive Pársis in Bombay in the past century, and now the existing generation of Pársis in Bombay quote Anquetil to aid their own deficiencies!

[2] "Mais tous les traités d'astronomie propres à l'Inde, ceux qui sont réputés les plus anciens comme les plus modernes, sont identiques pour le fond les uns aux autres; ils ne diffèrent que par des modifications de détail, dues à l'infiltration de la science européenne soigneusement dissimulée."—Review of "The Oriental Astronomer" (1848) in the Journ. des Savants, by M. Biot, April, 1859, p. 197.

"De ces éléments d'investigation combinés, on verra, je crois, résulter avec évidence, que la science astronomique dont les Hindous se vantent comme leur étant propre, et dont ils font remonter l'établissement primitif à une antiquité fabuleuse, repose sur des données d'observations qui leur sont étrangères et proviennent d'emprunts historiquement fort récents."—*Ibid.* p. 199.

"Il me reste à attacquer la dernière forteresse de la science astronomique indienne, l'institution des Nakshatras. Mais ce n'est qu'un édifice fantastique, image trompeuse de réalités, et le talisman de la critique le fera évanouir."—p. 418.

"It will be remembered that A. W. von Schlegel looked on the mention of these names (*karkaṭa*, etc.) as a proof not only of the high antiquity but even of the Indian origin of the Zodiac. but since the appearance of Holtzmann's admirable memoir, *Ueber den griechischen Ursprung des Indischen Thierkreises* (Karlsruhe, 1841), it is hardly possible for any one longer to doubt that the truth is quite the other way, and that the converse position is the correct one." . . . For, besides the mention of the *nakshatra*, there are also frequent references to the planets; and we know that the Indian astronomers acquired their knowledge of the planets at a comparatively late period. . . . And the peculiar relations which exist, just in those oldest passages in which the planets are mentioned, ... appear to point with certainty to the fact that the Indian astronomers were indebted to the Greeks for their knowledge of the planets; for neither Indian names, nor the deities associated with them, afford the smallest explanation of such relations."—Prof. Weber on the Rámáyana. Translation in the "Indian Antiquary," June, 1872, p. 172; see also Dr. Whitney, Journ. Roy. As. Soc. i. N.S. 324–7; Colebrooke's Essays, 1873, vol. ii. p. 479, *note;* Max Müller, Preface to vol. iv. Rig Veda (text), p. xliv.

[3] A later passage in Manu, defining the duties of *Brahman* husbandmen, after enumerating (x. 86, 7, 8, 9) what things a Brahman is prohibited from *selling*, goes on to say (94), "Fluid things may, however, be bartered for other fluids, but not salt for anything liquid; so may dressed grain for grain undressed, and *tila*-seeds for grain in the husk, equal weights or measures being taken."—Haughton, p. 354.

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piece through which to inhale smoke from the rough clay pipe-head to the complete exclusion of the external air, there need be no distrust as to the capacity of the closed fingers to retain liquids, a faculty which seems indicated in the very meaning attached to the term *anjalá*.[1]

Measures of Length.

The theory of the measures of length in India, though primarily based upon such natural tests as finger-breadths, spans, and cubits, is consistent in its acceptance of the seed arbitrament of local metrologies, for the purpose of checking the inevitable inequalities of size in men's hands and arms, and defining amounts below the initial finger-breadth. In its later practical development, it connects itself in a singular manner with the circulating media, inasmuch as, though the duties of ancient coins were already *dual*, as authorized weights and current money, the later Muhammadan kings conceived the idea of endowing them with a new faculty as criteria of length. It might have been supposed that roughly-finished hand-made coins, cut transversely from a rounded bar of metal, would furnish a very imperfect *unit* for such a purpose; but so well did the coarse-looking pieces of Sikandar bin Bahlól Lódi (A.D. 1488–1547) fulfil this mission, that independent trials made by General Cunningham[2] and myself,[3] to establish the length of this king's *gaz*,[4] or yard measure, vary only to the extent of ·0211 inches in the 30·0211 or 30· inches, which constituted our several determinations of the standard in question. As the number of *digits* or finger-breadths are specified in concert with the new elements of this measure, we may work upwards through tested tradition and its practical application in the ascertained *unit* of the fifteenth century, and inferentially define the normal size of the finger of the early occupants of the soil.[5]

As the passage relating to the Sikandari *gaz* is of considerable importance, and in its extant form clearly requires rectification, I append the original Persian text, as given in Dr. Blochmann's critical edition of the Áín-i-Akbari. In the preliminary sentences, reciting the various yard measures known in Hindústán, *Abul Fazl* enumerates no less than five varieties as current at different times in the country. 1. The long *gaz* of (24 divisions × 8 barley-corns or) 192 barley-corns. 2. The medium-sized *gaz*, whose dimensions are not specified. 3. The short *gaz* of (24 × 6 barley-corns or) 144 barley-corns. 4. A *gaz* similar to this last (24 × 6), but with the further definition that the breadth of the barley-corn is to equal the thickness of six hairs from the mane of a *Yábú* (horse). 5. A *gaz* of considerable antiquity, which is described as measuring دو شبر و دو کرہ انگشت or "two spans and two finger-breadths" = 26 finger-breadths or 208 barley-corns. The sub-

[1] انجلا *anjalá*, **अञ्जलि**. "The cavity formed by putting the hands together and holding the palms as if to receive water; as much as can be held in both hands so disposed."—Shakespear.

[2] General A. Cunningham, "Ancient Geography of India," London, 1871, i. 273, note, 575.

[3] "Pathán Kings of Dehli" (1871), pp. 371–4.

[4] گز "a measure, a rod, an arrow," from گزیدن "to prick, cut off, wound." So **धनु** *dhanu*, "a bow," gave its name to a larger measure.

[5] General A. Cunningham, proceeding upon the Sikandari data, makes the digit of India ·72976 of an inch. My return, which I have always considered as slightly below the mark, gives ·72289 of an inch. The Greek Δάκτυλος was ·7584375 and the Roman *digit* ·7281.

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divisions of this yard are especially noticed as following the quaternary system of sixteens and fours, making the *pahar* پهر (प्रहर) equal to $\frac{1}{64}$ part of the *gaz*. It is incidentally stated that No. 1 *gaz* "was used for measuring cultivated lands, roads, forts, and mud-walls." No. 2 served for measuring buildings of stone and wood, thatches, religious houses, wells, and gardens. No. 3 was employed for measuring cloth, armour, beds, *palkis*, chairs, carts, etc.[1] Omitting the extraneous notices of *seven* different Muhammadan *yards*, we come to a cloth measure (No. 6) specified as (هفت قبضه . . هر قبضه چهار انگشت) "seven hands of four fingers," 28 finger-breadths,[2] or 224 barley-corns; this yard is, however, stated by some authors to amount to 27 fingers only; and, finally, reference is made to No. 7, the گزمساحت or Geodetic *gaz* (مِسَاحَةٌ *dimensio*), also of seven hands, more or less, the authoritative length of which is not very clearly determined. After this, the text runs on as follows:—

سلطان سکندرِ لودهي در هندوستان نیز گزے در میان آورد و آنرا چهل و یک و نیم اسکندري اندازه گرفت * و آن مسین نقدے است گِرد نقره‌آمیز * جنّت آشیاني نیمِ دیگر افزود و بچهل و دو قرار گرفت * مقدارِ آن سي و دو انگشت بود * [the words مقدار آن بود are omitted in some MSS.] و از پیشین حکما نیز بدینسان برگذارند * و در زمانِ شیر خان و سلیم خان که هندوستان از غلّه بخشي و مُقطِعي بضبط آمد بهمین گز پیمودند * تا سالِ سي ویکمِ الٰهي اگرچه در کرپاس گز اکبرشاهي بود و بچهل و شش انگشت برابر لیکن در زراعت و عمارت اسکندري بکار داشتے * شهریارِ دانش پژوه چون دگرگونگيِ گزهارا سرمایهٔ پراگندگيِ دلها اندیشید و دست‌آویز نادرستان پنداشت همه‌را از میان بر آورد و معتدل گزے‌را روائي بخشید چهل و یک انگشت * [سي ویک انگشت variant] بیادکردِ ایزدي الٰهي گز نام نهاد و امروز در همه کار دست‌آویزِ مردم *

—Calcutta text, i. p. 295.

The tenor of this passage, as far as it relates to the *Sikandari gaz*, is to the effect that Sikandar Lódi, taking advantage, we may suppose, of the improved make of his remodelled coinage, authorized its use as a measure of length. It would seem that he contemplated no interference with the prevalent standard *gaz*, inasmuch as he did not seek to force it to match an even sum of coins, as Humáyún did after him. The *yard* in question is defined as being equal to the diameters of $41\frac{1}{2}$ *Sikandaris* (Sikandari tankahs), and further, the text goes on to state, that Humáyún increased the length of the *yard* to the even total 42 *Sikandaris*, or 42 finger-breadths,[3]

[1] Gladwin, Ain-i-Akbari, i. p. 351.

[2] Gladwin gives only "twenty fingers," i. p. 353.

[3] The text has سي و دو or "thirty-two" fingers, but the context clearly demands the correction to چهل و دو or *forty-two*. I myself did not notice this rather obvious error in the Persian text till I came to calculate the amounts involved. It is curious to see how constant this mistranscription has been even in the best MSS. All Gladwin's copies must have been wrong in this respect; Prinsep's authorities (Useful Tables, 123) shared the mistake, and the only effort to reconcile the obvious discrepancy between the "32 fingers" for the Humáyúni *gaz* and the 41 of the *Iláhi gaz* has been made by some commentator, attempting to assimilate the measures by reducing the 41 fingers of the latter to 31, as shown in the *variant* quoted above.

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which form of *gaz* continued in use throughout the reigns of Shír Sháh and Islám Sháh (A.D. 1540-1552) for certain descriptions of measurements, until the thirty-first year after Akbar's accession, when it was found that though cotton goods were measured by the newly-devised *Akbari gaz* of 46 fingers, yet the *Sikandari* (it does not say *Humáyúni*) *gaz* of 41½ fingers, continued to be employed in land measures and masonry, when His Majesty accepted, as final, a reduction of the official yard, for all purposes, to 41 fingers, naming it by the ostentatious title of the *Iláhi* (or divine) *gaz*. The length of this *yard* in English inches, as tested by the coins, will therefore run at 29·92016 inches, or taking the lower estimate (of 30 inches for 41½ Sikandaris) at 29·63849 inches. In the early days of our occupation of Northern India great efforts were made to fix and determine this most important measure, which constituted, in effect, the basis of all the official definitions of superficial areas to be found in the land surveys of our predecessors. Endless calculations and comparisons, derived from the most unpromising materials, were made to ascertain the true length of this *gaz*, ending, however, in so little satisfactory a result as to leave the question open between 29 and 35 inches; but as the majority of actual measures of land made it 33 inches, that amount was adopted in our new legislation, though, as James Prinsep justly remarked, "it is natural to suppose that the *gaz* adopted for measuring the land should vary on the side of excess, and probably all the above [returns] thus derived are too long."[1] But there was a still larger question left unnoticed, as to how far Akbar's decree had been practically enforced beyond the metropolitan provinces, and how many local officials contented themselves with a paper revision of the old estimates, without needless measurements, leaving the village accountants and the occupiers of the soil to their undisturbed ancestral estimates.

I now give Colebrooke's Tables of linear measures.

MEASURES OF LENGTH, ETC.

"On the measures of space Gopála Bhaṭṭa quotes a text from *Vriddha-Manu*, which traces these from the same minute quantity as weights.

8 *trasareṇus* = 1 *reṇu*.
8 *reṇus* = 1 *bálágra*, or hair's point.
8 *bálágras* = 1 *liksha*, or poppy-seed.
8 *likshas* = 1 *yúka*.
8 *yúkas* = 1 *yava*, or very small barley-corn.
8 *yavas* = 1 *angula*, or finger.

From this Manu proceeds to larger measures.

12 *angulas* or fingers = 1 *vitasti*, or span.
2 *vitastis* = 1 *hasta*, or cubit."[2]

—Colebrooke's Essays, ii. 538.

[1] Prinsep, Useful Tables, ii. p. 125. See also the endless variety of Linear Measures of India, pp. 127–8, and Wilson's Glossary, *sub voce*.

[2] The *Markaṇḍeya Puráṇa* notices two other methods of measuring.
21 breadths of the middle of the thumb = 1 *aratni* (Dhanurdaṇḍa?)
10 ditto = 1 *prádeśa* or span from the tip of the thumb to the tip of the forefinger.

The *Líládvatí* defines the measures of arable land:
10 hands = 1 *vanśa* or bambú çane.
20 *vanśas* (in length and breadth) = 1 *niranga*.

I annex a curious remnant of ancient custom which still finds a refuge in Kumaon. "The mode of calculation (of the measures of land) in use throughout the hills is, by the estimated quantity of grain which the land will require to sow it. . . . The most common denomination is the *bísí* (*bís* 20, *bísí* 20th), which has

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Beyond these primitive measures, advancing civilization introduced the following, which are quoted from various sources:

4 *hastas* = 1 *danḍa*, "a staff," *dhanu*, "a bow."
10 *hastas* = 1 *bans* or *bambú*.
2 *dandas* = 1 *náḍika* or *náḍi*.
2000 *dandas* = 1 *kos* or *kroṣa*.
2 *kos* = 1 *gavyúti*.
4 *kos* = 1 *yojana*.

Measures of Time.

Divisions of Time, from Manu, i. 64:

18 *nimeshas*, or twinklings of an eye = 1 *káshṭhá*.
30 *káshṭhás* = 1 *kalá*.
30 *kalás* = 1 *kshaṇa*.
12 *kshaṇas* = 1 *muhúrta*.
30 *muhúrtas* = 1 day and night (according to mean solar time).

now been adopted as a general standard. The regular *bísí* ought, as its name implies, to contain land requiring 20 *nalís* (*nal*, a joint of Bambú) of seed; its actual extent, therefore, varies according to the quality of soil, as the grain is sown much wider in poor lands near the summit, than in rich lands at the base of the mountains. . . . Another mode of computation is by the *plough* of two yoke of bullocks."—G. W. Trail, Report on Kumaon, As. Res. xvi. p. 178.

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CHAPTER II.

MONEY, UNDER ITS HISTORICAL ASPECT.

I HAVE already extracted from the ancient Code of Manu the contemporaneous definition of the weights of metal in use "for the purpose of worldly business." I will now examine how much of an approximation to the conventional notion of a money currency had been reached at the period of the composition or collection of the Vedas and other archaic Sanskrit texts.

Professor Wilson was the first to proclaim the discovery of a reference to coined money in the Vedas, where, in the enumeration of the gifts bestowed upon the Rishi Garga by Prastoka, the son of Rájá Sṛinjaya, mention is made of "ten purses" of gold.[1] It is only of secondary importance, at this stage of the inquiry, to seek to determine the exchangeable rate, or the contents of these "*purses*, bags, or chests,"[2] though I should primarily be disposed to identify them, in their archaic form, with the curious little *red bags*, filled with crude gold to the amount of about sixteen shillings, which still figure in the Trans-Himalayan commerce with Northern India,[3] though such an association does not necessarily imply a parallel reduction of size or weight. The leading point established by the context consists in the admission that some recognized scale or measure of value was understood and freely accepted among the Vedic Aryans under the given denomination of *koṣayih*—just as we find in the later civilization of the land a continuous conventional use of closed or sealed bags, such as the traveller Bernier saw at the Court of Aurangzéb in 1663 A.D.,[4] and whose counterparts but recently appealed to our modern comprehension in the current "purses" of the Ottoman Empire. The words *dasa hiraṇya piṇḍán*, "ten lumps of gold," in the succeeding verse of the same hymn, seem to have a much more direct bearing on the general question, and would almost in themselves suffice to establish a reckoning by tale. Had the text merely confined itself to the expression "lumps of gold" in the generic sense, crude and undefined fragments of metal might have been understood; but the deliberate enumeration of ten horses and ten lumps of gold[5] would seemingly enforce the conclusion that those lumps were determinate sections of the metal of habitually recognized value, or some such divisional portions of gold, without the same limitation as to size, as we see in the

[1] Rig Veda Sanhitá, iii. pp. xvi. and 74; and note, *ibid.*

[2] TEXT, "*Daṣa koṣayih.*" COMMENTARY, "*Suvarṇapúrnán daṣakoṣán.*"—H. H. Wilson, iii. p. 474. That it was the custom to employ bags, with fixed and defined quantities in each, at or about this period, may be gathered from the extract from the Mahábhárata quoted below, p. 38.

[3] "Gold dust separated into *Phetángs* (covered money?), each tied-up in a bit of cloth, is current as coin at eight Rupees the Phetáng."—Trail's Report on the Bhotea Mahals of Kumáon, As. Res. xvii. p. 24 (passage quoted at large, p. 25, *supra*).

[4] In giving an account of the elephant combats, he mentions that the courageous Mahauts (or drivers) had "sacks of Peyssas" given to them as rewards.—iii. p. 67, English edition of 1672. The *Aín* or Institutes of Akbar have preserved a record of the Court custom, of always keeping "ready, in the palace, large sums in *dáms*, every thousand of which are kept in bags."—Gladwin, Aín-i-Akbari, i. 3. The term for purse here made use of is سهسه, सहस्रं *sahsah*, "a thousand," توڑا *tora*. In Persian بهله *bahlah*, "a purse," hence *kharj-i-bahlah*, "expenditure from the privy purse."

[5] Rig Veda Sanhitá, 4th ashṭaka, 7th adhyáya; súkta xlvii. verse 23, "I have received ten horses, ten purses, clothes, and ample food, and ten lumps of gold, from Divodása."

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parallel cases of the silver and copper of which Manu speaks, and whose extant survivors find a place in our medal cabinets. The near juxtaposition of the term *hiraṇya piṇḍán* with the preceding *koṣaiyih* seemingly points to refined or wrought metal, in contrast to the *native* gold inclosed in the latter. It is probable that the former consisted of buttons of cast metal, which originally took the form of rough balls or imperfect pyramids,[1] which in process of time were hammered flat, hall-marked, and assimilated to the later productions of the domino shape, whose edges were ordinarily cut at hazard to reduce them to accurate official weight.

In addition to this allusion to pieces of gold, which I suppose to have been in point of value *suvarṇas*, the Vedas, on two occasions, distinctly name the *nishka*. The first reference to this money-weight is to be found in a hymn by that most mercenary Ṛishi, Kakshívat,[2] devoted to no deity, but to the glorification of Rájá Bhávayavya, a mundane prince dwelling on the Indus, whose beneficence is eulogized in an extended play upon the number of his gifts, among which the Ṛishi confesses to having "unhesitatingly accepted 100 *nishkas*, 100 vigorous steeds, and 100 bulls;" evidencing, as in the previous instance, a numerical computation by pieces of recognized value much in advance of the primitive test of scales and weights. Again, in a subsequent súkta, Gṛitsamada, a Ṛishi of some celebrity,[3] in addressing the divinity Rudra, says, "He shines with brilliant golden ornaments." . . . "Worthy thou bearest arrows and a bow; worthy thou wearest an adorable omniform necklace."[4]

The mediæval scholiast substitutes the word *hára*, "a necklace," for the *nishka* of the original text,[5] an interpretation which is followed by the modern translator. It would seem that one of the derivative meanings of the word *nishka*, as in the parallel instance of *dínára*,[6] came in process of time to apply to "an ornament of the neck," the component elements supplying the designation in either case. From the passage in question we may reasonably infer that the *nishka* of the Vedas had, even then, attained so much of a definite and unvarying form, and partial fashioning, as to be suitable for decorative purposes in its current shape,—a deduction which would further imply that

[1] The word पिण्ड *Piṇḍ* has survived in the Panjáb with the meaning of "village," rather than "hill," *ex. gr.* Râwal Piṇḍi, Piṇḍ Dádan Khán, etc. Numismatists may prefer to follow the mechanical traditions of the south, in "the Canarese *gulige* (Sanskrit *gutika*)," which Sir W. Elliot mentions "was the ancient name of a class of small spherical coins." See figs. 3, 4, 5, pl. vii. vol. iii. Madras Journal (1858). Whence, also, the later gold *'adal, gutkah* (guṭká) of the Aín-i-Akbari, i. p. 32. See my Pathán Kings of Dehli, p. 420.

[2] Wilson, Rig Veda Sanhitá, ii. p. 17. See also i. 312, 316, etc.

[3] Wilson, Rig Veda Sanhitá, ii. p. 207.

[4] Wilson, Rig Veda Sanhitá, 2nd ashṭaka, 7th adhyáya; súkta xxxiii. vol. ii. pp. 291–2. The original Sanskrit text is subjoined for reference.

अहँन्बि भषि सायकानि धन्वाहँन्निष्कं यजतं विश्वरूपं।
अहँन्निदं दयसे विश्वमभ्वं न वा ओजीयो रुद्र त्वदस्ति
॥ १० ॥

[5] Max Müller, Rig Veda, ii. p. 579.

[6] Max Müller (Sanskrit Literature, p. 245), remarks—"The Sanskrit derivations of the word *dínára*" are clearly fanciful, and "the Sanskrit *dínára* is in reality the Latin *denarius*."

"Cosmos Indicopleustes remarked that the Roman *denarius* was received all over the world; and how the *denarius* came to mean in India a gold ornament we may learn from a passage in the Life of Mahávíra. There it is said that a lady had around her neck a string of grains and golden *dínárs*."—Kalpa-sútra. Stevenson, p. 45. See also Colebrooke (Cowell's edit.), iii. 478; Prinsep's Essays, i. p. 246; J.A.S. Beng. vi. p. 459.

We have very early quotations of the word *dínár* in the Gupta Inscriptions. Chandra Gupta's Inscription on the eastern gate at Sanchí specifies a grant of 25 *dínárs* (Prinsep's Essays, i. p. 246). Chandra Gupta II. and Kumára Gupta, in their Inscriptions at Garhwá, each record grants of 10 *dínárs* (Gen. Cunningham, Arch. Report, 1873, p. 55).

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the piece itself was understood or admitted to be of a constant and uniform make, and that, in effect, it carried its description in its name.

It is a question whether it is not also necessary to amend the translation of the adjective, *Viswá rúpa*, from "omniform," to the more intelligible "pervaded," or covered "with forms" or symbols, a rendering in complete harmony with Burnouf's parallel passage of *lakshanáhatam dinára dvayam*, "deux dínárs marqués de signes,"[1] and which singularly accords with the state in which we find the silver money of the period. Should any difficulty be felt at the supposition of the adornment of a god with so obvious a work of man's hand, it may be said that bows and arrows are scarcely divine weapons;[2] but the inherent tendency of lightly-clad imperfectly domiciled races to wear on their persons their more valuable and easily portable wealth would naturally suggest the notion that the deities followed a similar practice; and the expression instructs us that the people among whom it was uttered were in the habit of hanging round their necks sections of the precious metals, even as their successors in the land for ninety generations have continued to do; having thereby, in many instances, undesignedly preserved for posterity the choicest and most interesting numismatic memorials of olden time.

Another suggestion of Professor Wilson's, tending to show that money was current during the Vedic period, refers to the passage in the fourth ashṭaka, second adhyáya,[3] verse 6, where the Ṛishi Samvaraṇa, in addressing Indra, proceeds, "do thou give us riches, and brilliant wealth." The words for the latter are *enim rayim*, literally "white riches," and the question arises whether this term does not apply to *silver* money as contrasted with the frequent allusions to gold. Such an inference is greatly supported, on the one part, by the frequent use of the adjective "yellow" in connexion with gold in the Vedic texts; and, on the other, by the conventional Oriental expression of "red and white riches," as applied to gold and silver money.[4]

Prof. Weber has collected from the Sútras and later Vedic writings a number of references to money weights,[5] the most interesting of which are the notice of the silver *ṣatamána* by Kátyáyana, the immediate successor of Páṇini (xx. 2, 6), and the mention of a "yellow-gold *ṣatamána*" (*hiraṇyaṃ suvarṇaṃ ṣatamánam*) in the Satapatha Bráhmaṇa (xii. 7, 2, etc.), showing that the term *ṣatamána*, which is given by Manu exclusively as a weight of silver, had come to be used indifferently with its coincident metric denomination, the *nishka*, which in earlier times specially implied a measure of gold.[6] The quotation of *suvarṇasalákáni yavatriyaparimitáni* from the Ṣruti[7]

[1] Burnouf introduces this and a second passage about *dinárs* with the subjoined remarks: "Ce mot est très-rarement employé dans les livres Sanskrits du Nord, et je ne l'ai jamais rencontré dans ceux des Sútras que je regard comme anciens, au moins pour le fonds. Je n'en puis, jusqu'à présent, citer que deux exemples. Le premier est emprunté à la légende de Hiraṇya páṇi, laquelle fait partie de l'Avadána çataka" . . . [two *dinárs* as above]. The second example cited is from the Divya avadána, where Pushpa mitra, last of the Maurya kings of Magadha, promises 100 *dinárs* for the head of each Buddhist sramana.—Introduction à l'Histoire de Bouddhisme (Paris, 1844), p. 423.

[2] Xenophanes . . remarks "that men seem to have created their gods, and to have given to them their own mind, voice, and figure; that the Ethiopians made their gods black and flat-nosed, the Thracians red-haired and blue-eyed—just as cows or lions, if they could draw, would draw their gods like cows and lions."—Max Müller, Science of Language, ii. p. 388.

[3] Rig Veda Sanhitá, iii. p. 288.

[4] تنكهاي سرخ و سپيد "red and white coins."—Táríkh-i-Alâí, MS. Cf. also the Arabic دينار البيضا "white *dínár*."

[5] Zeitschrift, vol. xv. 1861, pp. 138-9.

[6] See also the quotation from Yájnavalkya, section i. sl. 364, reproduced above, at p. 20, note 5.

[7] Mádhava in Kálanirnaya. *Sruti*, "sacred revelation," as opposed to *Smṛiti*, or "tradition."

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is also of importance, the designation of *saláká* identifying the gold piece directly with the parallel issue of silver, the residuary specimens of which retain the name to this day in the south of India.[1] But the definition of the weight of the gold *saláká* as three barley-corns (or one *rati*), and the associate mention of a *rati* of gold (*hiraṇya kṛishṇalani*), has a more direct bearing upon the subdivisional currency, which is again brought home to us by the metrologies of the Drávidian peninsula, in the Telugu *béda*, "a coin representing the *gunja* or *rati*:"[2]—while the quotation of *ṣata kṛishṇala* and *raktiká ṣata* explains the derivation of the most important numismatic *unit* in the history of India—the concurrent pieces of gold and silver of 175 grains forming the higher standards of the Pathán Kings of Dehli, the prototypes of the East India Company's "Mohurs and Rupees."

Having obtained from the Vedas themselves so much of an indication of the use of circulating monetary weights at the very early period to which those hymns are now admitted to belong, my task in proving an obvious advance upon the rudimentary phase of the science of money, under Manu, will be simple; especially as so much has already been incidentally brought forward tending to dissipate any remaining doubt as to the existence of a *coined* copper currency much anterior to the epoch when the customs and usages of preceding ages had to be acknowledged as the practical basis of, and as far as might be conciliated in, the new code[3] which was to make Brahmanism absolute. As I have already stated, there is no direct evidence to show what technic art had achieved in those days, or what form or finish was given to the current money; but as with the copper, so with the divisional parts of gold and silver, in the table quoted from Manu (viii. 131–137), their classification represents something more than a mere theoretical enunciation of weights and values, and demonstrates a practical acceptance of a pre-existing order of things, precisely as the general tenor of the text exhibits these weights of metal in full and free employment for the settlement of the ordinary dealings of men, in parallel currency with the copper pieces, whose mention, however, is necessarily more frequent, both as the standard and as the money of detail, amid a poor community. Their use in the higher totals would seem to refer to an earlier stage of civilization, or to a time when the interchangeable values of the different metals were less understood and even more imperfectly determined. There is no attempt to define these relative values, and the omission may, perchance, have been intentional; though some such scale would soon settle itself by custom, and the lawgivers may wisely, in their generation, have abstained from attempting, like our own statesmen, to fix the price of gold for all time, to give permanency to an ephemeral balance, or otherwise to swerve from the ancient simplicity of their own copper standard. Neither need there be any distrust of the

[1] Sir Walter Elliot, Madras Journal of Lit. and Science, 1858, p. 224. *Saláku* (Telugu), "A dent or mark on a coin denoting its goodness."—Wilson, Glossary. The leading meaning of the Sanskrit *saláká* is given as a dart, an arrow; one of its derivative meanings is "an oblong quadrangular piece of ivory or bone used in playing a particular game; a domino."—Wilson, Sanskrit Dictionary. Among the surgical instruments of the Hindus there were no less than twenty-eight varieties of *saláká*, "rods or sounds," so that the name of the coin may have been derived from the *punch* or tool with which it was marked.—Wilson's Works (Dr. Rost's edit.), iii. p. 385.

[2] Sir W. Elliot, Numismatic Gleanings, Madras Journal of Lit. and Science, p. 44.

[3] "No greater crime is known on earth than slaying a Brahman."—Manu, viii. 381.

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contrasted passages, as representing different stages of national advancement. The collection of a code of human laws would necessarily embrace the progress and practical adaptations of many generations of men, the older formulæ being retained in the one case, side by side with the more recent enactments and their modified adjuncts. In a compilation of this kind, the retention of such apparent anomalies would indeed be a negative sign of good faith; and as we have to admit considerable uncertainty as to the exact epochs of the origin, application, and classification of these laws, and a still greater margin of time to allow for their versification and ultimate embodiment in Sanskrit writing, it would be as well not to lay too much stress upon their internal evidence, when all the deductions we need can be established from external testimony.

Among other ancient authorities that may be cited incidentally for the purposes of the present inquiry are the popular epics of Indian tradition, the Mahábhárata and the Rámáyaṇa. I need not stop to discuss the age or internal consistency of these works,[1] but what is more pertinent to the matter in hand is the curious contrast presented by the narrative portions of the several texts. The one refers naturally to the advanced civilization of a central capital on the Ganges with all the accessories of town life,[2] while the other concerns itself chiefly with the rude discipline of a regal house in Oude, from whence the sons and daughter-in-law of the king go forth, at short notice, clothed in "bark-garments," to wander over forest lands for near upon the "twice seven" years of sentenced banishment.

Under these conditions, we can expect to find little or nothing in the latter poem having any reference to coins or their less mature prototypes;[3] indeed, as I have elsewhere pointed out, from the geographical distribution of the extant examples of ancient Indian mintages,[4] no coins whatever seem to have been produced, in early times, beyond a vague line to the east of the Jumna. In addition to which, we now know that there was *no* money current in Bengal till the Muhammadans carried it down with them on the conquest of the country in A.D. 1203.[5] And, furthermore, even

[1] Dr. Rost's edition of the Works of H. H. Wilson, iii. p. 227; iv. p. iv; Max Müller, Sanskrit Literature, 1859, pp. 36, 41. "The Mahábhárata is also called the fifth Veda," 44, 62. A very comprehensive examination of "the date of the Mahábhárata" has lately been made by Prof. Ramkrishna Gopal Bhandarkar, and published in the Journal Bombay Branch Roy. As. Soc. 1872, p. 81, in which he proves, from the mention of this work in Páṇini's Sútras (vi. 2, 38), and in other texts of even earlier date, such as the Aitareya Bráhmaṇa and Áśvaláyana Gṛihya, that it must claim a very high antiquity, at all events prior to the age of Páṇini, whom he places three centuries or more before his commentator Patanjali, whose own date is fixed on good evidence at B.C. 178–142; making the great epic therefore anterior, at the least, to B.C. 478.

[2] Talboys Wheeler, History of India, London, 1867, vol. i. "The Mahábhárata" (Mr. Halhed's original translation), p. 41, *et seq.*; vol. ii. (1869) "The Rámáyaṇa," p. 1, *et seq.*; Mrs. Manning, Ancient and Mediæval India, 1869, vol. ii. p. 1, *et seq.* Mrs. Manning's work has scarcely received the attention that it deserves; perhaps in its higher range it was somewhat beyond her powers; but we must now recognize the fact that all its more material data were sanctioned, if not inspired, by Prof. Goldstücker; while the proofs of each sheet had the advantage of the supervision of Dr. Rost.

[3] The passage at p. 5, speaking of no one "giving less than 1000 RUPEES to the Bráhmans," must clearly have been interpolated. *Rupees* certainly were not invented in or about 500 B.C.

[4] "In my own individual experience, *no* ancient coins, in the general sense, are found below Allahábád. Benares occasionally contributes a transported specimen; but the limits of search, approved by my own native coin collectors starting from our headquarters, at Saharunpore or Dehli, gradually ceased to extend below Mathurá. On the other hand, we know how singularly the surviving representatives of the earlier Greek currencies localized themselves in Behgrám, and how prolific the soil of the Panjáb still continues to be in the numismatic remains of the more settled Indo-Bactrian and Indo-Scythic kings."—J.R.A.S. i. N.S. (1865) p. 473.

[5] Minháj-us-Siráj, the author of the Tabakát-i-Násirí, mentions this fact on the occasion of his own visit to Lakhnautí in A.H. 641. Calcutta text, p. 149. See also my Pathán Kings of Dehli, London, 1871, p. 111.

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in this century the East India Company had to condescend to receive the revenues of certain portions of that province in the *Cypræa moneta* or Cowrie shells of the Maldive Islands.[1]

On the other hand, the story of the wars of the Páṇḍavas with their stronghold at Hastinápúr, on the Upper Ganges, and the rival city at Indraprastha, abounds in incidental notices of money, in what may be termed its full development—that is to say, exchangeable money, coined money, and money in such subdivisions as might be freely scattered amid a city crowd, whose hard-won pieces should be immediately available for the purchase of food or other necessaries.

In speaking of *Arjuna's* entrance into the city of *Hastinápúr*, it is mentioned that "chains and wreaths of flowers were let down upon their heads from the verandahs, and large presents of money were scattered in handfuls, so that the poor and needy in the city became all rich from the quantity they picked up."

Again, among *Raja Yudhishthira's* presents on the performance of the *Aswamedha*, or horse sacrifice, there is specified "one crore of gold coin."—Mr. Halhed's translation of the Mahábhárata; Wheeler's History of India, i. pp. 417, 433.

In another passage we are informed that during Yudhishthira's gambling with Sakuni, he "lost every game. He first lost a very beautiful pearl; next a thousand bags, each containing 1000 pieces of gold; next a piece of gold so pure that it was as soft as wax."—Wheeler, i. p. 179. See also *passim*, pp. 214, 405.

The above extracts will suffice perchance to establish all that is at present claimed regarding the free use of money at this period.

But one of the most interesting contributions to Eastern antiquities, in the pages of the Mahábhárata, crops up in the form of an acknowledged local belief,[2] however vague, in the gold-producing ants of the early Greek authors,[3] about which English scholars were once greatly perplexed.

A somewhat summary attempt at the reconciliation of the incredible character of this oft-told tale has lately been suggested in the possibility of the *Μύρμηκες* of Herodotus (the Persian مور *Múr*)

[1] The English reader may like to follow the practical working of the cowrie currency, as told in the subjoined graphic account of *a day's trade*, evidently contributed by an eye-witness:—"Potdars, or money-changers, are a very numerous class; but many of them having no shop, sit in the open market with heaps of cowries placed before them. In the more rural quarters the money-changer goes to market with a bag of cowries on his head, or if a rich man, with a loaded ox, which if strong may carry to the value of 150 rupees. All the early part of the market he sells cowries for silver to the people who wish to purchase goods, and in the evening the various hucksters bring back their cowries and exchange them for silver. In the morning the money-changer usually gives 5760 cowries for a rupee, and in the evening he gives a rupee for 5920, which is a profit of $\frac{1}{36}$ part on every good mint rupee, besides a fluctuating *batta* or exchange on all others." And yet the English commentator of the day adds, they "are in fact an excellent circulating medium!"—Hamilton's Hindustán, 1820, i. p. 40.

[2] "One of the most remarkable passages of this description next ensues, and explains, most satisfactorily, the origin of the extravagant fables related by Greek writers, respecting the gold-making ants of the auriferous deserts of Northern India. It is said that 'the people who dwell under the pleasant shade of the Kíchaka-vénus (a kind of willow) and along the Sailodá river, between the Meru and Mandara mountains, who are called Khasas, Pradaras, Páradas, Ekásanas, Arkas, Kulindás, Tanganas, and Paratanganas, brought to Yudhishthira lumps of gold of a *dróna* in weight, of the sort called *paippílika*, that is to say, ant-gold; which is so denominated because it is exfodiated by *pippílikas*, that is, by the common large ant.' We have here the expression of a belief which we know to be prior by more than five centuries to the Christian æra, and which, however erroneous, was neither very extravagant nor irrational. This simple and archaic notion, however, was perverted by the credulity of writers and misrepresentations of travellers, until, in the form in which it reached Asia Minor, it had grown into a monstrous and incredible absurdity. The scene in which this ant-gold is found is the same generally as that inferred from the Greek writers, the country between the Himálaya and the Kuenlun ranges towards Tibet."—H. H. Wilson, Notes on the Sabhá Parva of the Mahábhárata, J.R.A.S. vii. (1843) p. 143.

[3] Herodotus, iii. 102; Arrian, quoting Nearchus, Indica, xv.; Megasthenes, Frag. xxxix.; Strabo, xv. i 44, 69; Aelian, N.A. 3; Pliny, v. 31, vii. 2, xi. 36, xxxiii. 21; Ctesias, Ind. 12, *γρῦπες*; Gildemeister, De rebus Indicis, p. 220, quoting the 'Ajáib ul Akhbár—نوع من النمل عظام.

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being after all mere human gold-diggers, who comforted themselves in the inclement winter months —during which they worked to the best advantage—by sinking their fragile tents below the surface of the earth.[1] This solution, however ingenious, can scarcely be set against the positive assertion of skins being produced, and live animals being seen, some of them in possession of the King of Persia (Herodotus, iii. 102). While their survival in the flesh is testified to by Prester John in the twelfth century, and the living specimen sent from the Sháh of Persia to Solyman II. in 1559 A.D.[2]

The next contribution to the advance of coinages in India is derived from the unpromising source of the *Sútras* of Páṇini, in which pieces of money in a very complete form are adverted to.[3] That nominal terms should appear in the grammar of a people would, at the very least, imply that the object designated had attained extensive social recognition. Without touching the higher ground, as to how soon in a nation's linguistic progress fixed grammatical definitions may become a religious, intellectual, or material need, it cannot but be conceded that if the name and description of a coin find a place among rules for the formation of words, this should afford sufficient evidence to establish that such a simple product of mechanical art must long have passed into the dealings and commercial life of the nation at large, before it could have become incorporated in the conventional speech, and been sanctioned in the teachings of the schools.

Admitting these inferences, it remains to decide upon the date of the great grammarian himself. Prof. Goldstücker conceived that he had obtained most important confirmatory testimony to show that *Páṇini* lived before *Buddha Sákya Muni* (B.C. 543).[4] Singular to say, since my

[1] "At Thok-Jalung the tents of the diggers are always pitched in pits some seven or eight feet below the surface of the ground, so as to keep out the wind. . . . The position in which the Tibetans sleep is a most extraordinary one; they invariably draw their knees close up to their heads, and rest on their knees and elbows, huddling every scrap of clothing they can muster on their backs." The price of the gold, in situ, was about 12 rupees per *tolah*.—Montgomerie's Report on the Trans-Himalayan Exploration during 1867, Journ. R. Geog. Soc. 1869, p. 154.

Sir H. Rawlinson, I believe, first suggested the idea of *human* ants, a theory which has lately found an elaborate advocacy in Schiern's "Origine du conte des formis qui déterrent l'or."

[2] De Thou, History of his Time, xxiv. p. 809; Rawlinson's Herodotus, etc.

[3] Professor Goldstücker was so obliging as to examine Páṇini for references to coins, and to furnish me with the following note on the subject:—"That Páṇini knew *coined* money is plainly borne out by his Sútra, v. 2, 119, *rúpád dhata* . . . . where he says, 'the word *rúpya* is in the sense of "struck" (*áhata*), derived from *rúpa*, "form, shape," with the *taddhita* affix *ya*, here implying possession; when *rúpya* would literally mean "struck (money), having a form."' Kátyáyana and Patanjali make no observation on these words, but the Kásiká-vritti says that 'form' here means 'the form or shape of a *man* which was struck on it;' and considering that *rúpa*, 'form,' is in this Sútra used without any addition—or emphatically, the ellipsis of *purusha*,-'man'—is perfectly natural and justified. As to the date of the Kásiká-vritti, nothing positive is as yet known of it; it is certain, however, that it is much later than the Mahábháshya; but even without its interpretation, I hold that no other sense than that put by it on this Sútra could rationally be attributed to it."

[4] I have not yet been shaken in my acceptance of this date for the initial year of the Buddhist cycle, . . . which I prefer as a mere date point to any other, on account of its early reception and continuous use as the established era in Ceylon.—J. R. A. S. i. N.S. p. 461.

As regards the date and surroundings of Páṇini and his work, much new light has recently been thrown on the question, which I may conveniently refer to in this place.

"Páṇini, a writer now generally supposed to have lived in the fourth century B.C. At that time Sanskrit had ceased to be a living language, and was only kept up artificially by being made the vehicle for the education of the upper classes. It would be interesting to know what style of language Páṇini chose as the standard of his observations. It certainly was not the idiom of the Vedas, as he seldom treats this with his usual accuracy, and only mentions it in order to show its discrepancies from the classical style, or, as he terms it, the language of the world. We believe that long before his own time a scientific and poetical literature had already sprung up, etc."—Prof. Aufrecht, in the Philological Society's Transactions for 1873-4, p. 223.

Mr. John Muir, in an elaborate analysis of a late volume of Prof. Weber's *Indische Studien* (1873), has collected much valuable information on the general subject of Páṇini and his successors, portions of which I may be permitted to quote in illustration of my text. (I notice as this sheet is passing through the press, Max Müller's review of Dr. Kielhorn's new publication on the cognate question, in the *Academy* of 8th August, 1874,

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respected friend endeavoured to fix the epoch of his leading authority by the aid of the accepted date of the *nirvána* of Buddha, so much of a revolution has taken place in Eastern opinion that we now consider the definite determination of the period of the grammarian of far more importance, for the purposes of Indian history, than the dying moments of a traditional saint. However, accepting any of these sufficiently early periods for the indorsement *in writing* of the passage in question, I am satisfied to leave the limit of the anterior currency of the coins open to free discussion.

The allusions to money in the sacred literature of Sákya Muni are so frequent, in comparison with their rare occurrence in the Vedic writings, as to have led one of our modern inquirers to infer that the Buddhists understood and employed the art of coining long before their Brahman adversaries.[1] A more simple and satisfactory reason may be assigned for the apparent result, in the fact that the Vedas and their supplemental rituals refer to an ideal polytheism, while the Buddhist scriptures are based on the personal biography of a man living in the flesh among the people of India, whose manners and customs are thus incidentally portrayed. So that, on the one hand, while the Vedas proper furnish but few references to money, and Manu confines his notices to the formal letter of the law, though that law brings within its circle even the definition of

p. 156.) "The fourth article (pp. 293–496), of which I propose to give a more detailed account, relates to the Mahábhâshya of Patanjali, illustrated by the Commentary of Kaiyyaṭa, of which a complete (lithographed) edition, edited by two Pandits of the Government College in Benares, was published there in 1872. This work (then unpublished) had been already described in Professor Aufrecht's Catalogue of the Sanskrit MSS. in the Bodleian Library, and in Professor Goldstücker's Páṇini. The Sútras or aphorisms of the great Indian grammarian Páṇini were discussed by Kátyáyana in his Várttikas. . . Patanjali undertook the double task of controverting Kátyáyana, when he appeared to be wrong, and of criticizing Páṇini. He also leaves many of the aphorisms without any comment. . . The genuineness of the whole of Patanjali's work itself, as we now have it, is not, as Professor Weber considers, beyond the reach of doubt, as some grounds exist for supposing that the book, after having been mutilated or corrupted, was subsequently reconstructed, and at the same time perhaps received various additions from the pen of the compiler. . . . Having premised these and other observations, Professor Weber proceeds to extract from the Mahábhâshya a variety of particulars which throw light on the age of its author (or, at least, on that of the parts of the work in which these particulars are found), and on the political, religious, social, and literary condition of the contemporary Indians. Thus, illustrations of grammatical rules are given which contain allusions to sieges by a Grecian king, and to sacrifice performed on behalf of an Indian prince, Pushyamitra, which (even if we are to suppose that they are current examples borrowed by the author from his predecessors) at all events show that the writer who employs them was posterior to the historical events and persons referred to. These references, however, do not enable Professor Weber to fix Patañjali's date more precisely than by placing it somewhere between B.C. 160 and A.D. 60, though a different conclusion is deduced from them by others. . . . Prof. Weber also finds in the book clear allusions to Buddhism; to a treatise on the Lokáyata or materialistic philosophy (while in one of the aphorisms of Páṇini himself mention is already made of atheists and fatalists); to the Brahmanical deities of the Epic period, Śiva, Vishṇu, etc.; to images of the gods; to Vásudeva or Kṛishṇa as a god or demigod, and to his having slain Kansa and bound Bali,—events which were represented in pictures and on the stage, and celebrated by bards; to the seven dvípas, or continents of the earth, to the limits of Áryávarta (the most holy portion of India), and to various other geographical details; to provincial differences of language, and indications of the supersession of Sanskrit by Prákrit; and to the preceding grammatical literature, both antecedent and subsequent to Páṇini. . . . Writing is referred to as practised by Brahmans. Then, as now, the Veda was read by many without being understood. In one place the word *átman*, or self, is clearly stated (though this was recognized before) to have a double sense—that of body as well as soul. Various allusions are also found relating to social life and morality, to amusements, literature, and dramatic exhibitions. The dissertation of which an account has just been given, forms a sequel to two former articles by Professor Weber, one in the first volume of the *Indische Studien*, headed 'Sketches from the Age of Páṇini,' in which the author seeks to derive from the references which that writer's aphorisms contain an idea of the extent of the literature which existed in his time. The second article is one in the fifth volume of the *Indische Studien*, which treats of the age of Páṇini, and Professor Goldstücker's views on that and other subjects, of which it contains an elaborate review. Professor Goldstücker assigns a high antiquity to Páṇini, placing him before Buddha; and as he accepts the year 543 B.C. as the date of the death of the latter, if we assume that the sage's labours extended over a period of forty-eight years, we arrive at the year 591 B.C. as the time when he came forward as a teacher; so that we must place Páṇini, if he preceded Buddha, as high as the seventh century B.C. This view Professor Weber contests, holding that it is proved by various allusions to Buddhistic practices, which he adduces from Páṇini, and by other considerations, that the great grammarian lived after the establishment of Buddhism."

[1] Spence Hardy, Eastern Monachism, London, 1850, p. 66.

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the lowest rate of wages, which is fixed at one *paṇa* a day, with an allowance of grain, etc. (vii. 126); the Buddhist legends, on the other hand, abound in illustrations of every-day life, including commercial dealings, charitable donations and distributions, and in one instance they have preserved a record of the quaint item, that the Anonyma of her day, in the ancient city of Mathurá, estimated her favours at 500 *puráṇas* (about £16). Burnouf, who cites this anecdote, has further collected in his "Introduction à l'Histoire de Bouddhisme," numerous passages mentioning *suvarṇas, puráṇas, kakini* (ratis), and *kárshápaṇas*,[1] and among other things he reproduces a tale which exemplifies the curious custom of the women of the period being in the habit of ornamenting the skirts of their garments with *kárshápaṇas*.[2] The notice of *dinárs*[3] has already been referred to. But the most important passage under the numismatic aspect in the Buddhist literature is to be found in the text of the "Maháwanso," where it is stated that the Bráhman Chánakya, the adviser of Chandra Gupta, "with the view of raising resources, converted (by recoining) each *kahápaṇa* into eight, and amassed eighty *kotis* of *kahápaṇas*."[4] If the Buddhist legends are to be taken as in any way correct exponents of the state of civilization at the period to which they professedly refer, it is clear that the act of recoining, and by conversion and depreciation making each *kárshápaṇa* into eight, would imply unconditionally not only that the art of coining had reached its most advanced stage, but that the ideas and customs of the country had been already trained by long usage to identify the regal stamp with the supposed assurance of fixed intrinsic value—a fallacy very early taken advantage of by the ruling powers. For while the primitive currencies which bear no royal impress were endued with, and retain to the present, a remarkable uniformity of weight, and equable fineness of metal, as in the very nature of things it was necessary for them to do, that they might exchange against full measure in return; on the other hand, from the moment true coins in our modern sense make their appearance, irregularity accompanies them, so that in the Indian series, in one of the first completely fashioned mintages, that of the silver Behat type, bearing the name of *Kraṇanda*,[5] the weights of fully-stamped and well-preserved specimens vary to the extent of from 29 to 38·2 grains.

The Ceylon annals casually illustrate the subdivisions of the *kárshápaṇa*, as they may be inferred to have existed under Manu (viii. 404), in the descending scale as 1, ½, ¼, ⅛. The *Bhikkhus* of "Wesáli" (*Bassahr*, north of Patna), asking alms, in 443 B.C., exclaim, "Beloved! bestow on the priesthood either a *kahápan*, or half, or a quarter of one, or even the value of a *másа*."[6] Without

[1] Pp. 91, 102, 3, 146, 7, 236, 238, 243, 245, 258, n. 329, n. 597.

[2] I think that instead of "skirts" we should understand the chain-armour-like girdles of gold pieces worn over the fine muslin garments, of which we have so many examples in the Buddhist sculptures, notably shown in the colossal figure of the Mathurá female given in pl. xi.*a*, in Gen. Cunningham's Arch. Report, vol. iii. The Art-treatment which indicated the gauze-like texture of muslin dresses may be seen in the mere outer edging indicated on the coins of the Indo-Scythians, Ariana Antiqua, plates xii. xiii. etc.

[3] P. 34, *ante*.

[4] Turnour's Maháwanso, Ceylon, 1837, p. xl.; and Max Müller's Sanskrit Literature, p. 289. The Ceylon writers wrote according to their own lights, as unlike the people of India Proper, who seem to have reserved the term *kárshápaṇa* for the copper coinage. The inhabitants of Ceylon and the western coasts appear to have coined both gold and silver into *kárshápaṇas, máshas*, and other established *weights*, though the generic term *kárshápaṇa* in books and inscriptions usually indicates *copper* coin in the absence of any specification to the contrary.

[5] Prinsep's Essays, i. p. 203, pl. xi. fig. 16; vol. ii. pl. xliv. figs. 2, 3, 4; Ariana Antiqua, p. 415, pl. xv. fig. 23.

[6] Maháwanso, J.A.S. Bengal, vi. p. 729. Prof. Childers has pointed out the following additional passages from the Maháwanso, p. 157:—"The king, desirous of rewarding Phussadeva, who had saved his life in battle, sent for Phussadeva's arrow, and holding it perpendicularly with the point resting on the floor,

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insisting upon this last, which would constitute $\frac{1}{16}$ of the *kárshápaṇa*, I may notice once again the permanency of Indian institutions in the fact that Akbar's *copper*[1] coins were retained under the original and simple division of 1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, in the presence of, and association with, the most curious complications of home and foreign introduction into the weights and values of the currency of the precious metals.

There is little else that will immediately serve our purpose in the notices of the Ceylon coins.[2] Nor do the more promising inscriptions of the Western Caves throw any particular light on the primitive coinages of Northern India. They contain numerous records of donations of *káhápaṇas*, and in one place notice a *Káhápan Sála*, or hall for the distribution of *kárshápaṇas*.[3] *Húns*[4] and *Paḍikas* are often mentioned, and special respect seems to have been shown to a currency called by the local name of *Náḍigera*.

After the foregoing evidence of the antiquity of the art of coining in India, it would almost seem superfluous to seek for confirmatory Greek authority for the existence of *coined* money in that country. The classical writers who quote or epitomize the narratives of the earlier eye-witnesses of Alexander's progress, and the more mature inquirers into the home civilization of the land, are profuse in their references to the laws, manners, and customs of the indigenous races; and, without doubt, the absence of a metallic currency would immediately have struck observers, to whom, in their own hemisphere, such a means of commercial exchange had become a fiscal necessity. Hence, in default of any negative assertion,[5] we might fairly assume a continuous employment of so small a measure of a nation's advancement; but there occur incidentally palpable proofs of the use of

piled *kahápaṇas* round it till it was completely covered with the coins, which he then presented to Phussadeva. It appears from Turnour's translation that the *kahápaṇas* are expressly said in the commentary to be of gold. The word *kahápaṇa* is used very frequently to imply a coin of very little value, as when we say penny, or farthing, *e.g.* in Játaka Nidána, *paralokaṁ gacchantá ekaṁ kahápaṇam pi gahetvá na gatá*, 'when they went to the other world, they did not take with them even a single *kahápaṇa*.'"

[1] Ain-Akbari, i. p. 36.

[2] Other references to money are to be found, Mahâwanso, pp. xli. 10; Spence Hardy, Manual of Buddhism, pp. 119, 218, 219. Prof. Childers has favoured me with the subjoined curious passage from Minayeff's Prâtimoksha Sûtra. It is taken from a Commentary on the Vinaya, supposed to have been written by Buddhaghosa in the fifth century A.D. *Rajataṁ náma kahápaṇo lohamásako dárumásako jatumásako ye voháraṁ gacchanti. . . . Tattha kahápaṇo ti suvaṇṇamayo vá rúpiyamayo vá pákatiko vá. Lohamásako ti tambalohádíhi katamásako. Jatumásako ti lákháya vá niyyásena vá rúpaṁ samuṭṭhápetvá katamásako.* "By rajata is meant the kahápaṇa, the metal másaka, the wooden másaka, the lacquer másaka, which are in current use. The kahápaṇa is either that made of gold or made of silver, or the ordinary one, viz. copper. By 'metal másaka' is meant the másaka made of copper and other metals. The lacquer másaka is a másaka made of lac or of resin with a figure (rúpa) stamped upon it." Clough, in his Sinhalese Dict., says that the *kahavanuva* (*kahápaṇa*) is "a weight for weighing gold and silver, equal to about 280 grains troy." Among other curious substitutes for money in India, Tavernier mentions the currency in Gujarát of small bitter almonds, *Bádáms*, "which are brought out of Persia," and exchange at from 35 to 40 for the *paisa* (p. 22).

[3] Journ. Bombay Branch, Roy. As. Soc. 1853; Dr. Stevenson's Kanheri Caves, Inscription No. x. p. 9, and the revision by Mr. E. W. West in 1862, p. 1, *et seq.*; see also Násik Cave Inscriptions, 1853, p. 3; and Sahyádri Inscriptions, 1854, p. 1.

[4] The mention of Húns thus early is of some value in this inquiry, as showing the age of the name, associated with the near coincidence of its authorized weight with that of the old *puráṇa*. Sir W. Elliot derives the word from *pon*, "gold," Canarese *honna*. The Varâha, or modern Pagoda, being merely a double *honna* of 32 *gunjas* or *ratis*.

[5] I quote the subjoined statement from Pausanias in order to explain how far it may be accepted as probable. Towards the end of the second century A.D. we know that North India was in possession of an ample currency in the form of Greco-Bactrian and other silver pieces, combined with an unlimited supply of gold and copper from the mints of the Indo-Scythian dynasties. The observation might apply with justice to some of the nations on the south coast, who avowedly dispensed with a coinage till a later period. "But on this road, as I have already observed, the Lacedæmonians have a place which they call Booneta. This was once the house of King Polydorus; and after his death, was bought of his wife for certain oxen; for at that time there was not any coin (*νόμισμα*) either of silver or gold, but according to ancient custom, they mutually gave and received for what they wanted, oxen, slaves, and rude silver and gold. Indeed, even at present, those that sail to the Indies report that Indian rewards are given for the Grecian commodities which are carried thither,

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coined money, in its advanced sense, amid the texts of the best authorities, which it may be as well to cite with a view to dispose of obsolete objections, and to preclude their revival.

The first extract refers to Alexander's entry into the capital of Sambus, and the offerings of absolute money and elephants then presented.

Ὡς δὲ ἐπέλαζεν ἤδη τῇ πόλει Ἀλέξανδρος ἥντινα μητρόπολιν εἶχεν ἡ τοῦ Σάμβου χώρα, ὄνομα δὲ ἦν τῇ πόλει Σινδίμανα, αἵ τε πύλαι αὐτῷ ἀνοίγονται προσάγοντι καὶ οἱ οἰκεῖοι τοῦ Σάμβου τά τε χρήματα ἀπηρίθμησαν καὶ τοὺς ἐλέφαντας μετὰ σφῶν ἄγοντες ἀπήντων· οὐ γάρ δὴ Ἀλεξάνδρῳ γε πολεμίως ἔχοντα Σάμβον φυγεῖν, ἀλλὰ Μουσικανοῦ τὴν ἄφεσιν δείσαντα.[1]

Postquam vero urbi quæ illius imperii caput est, (Sindimana ei nomen erat) appropinquavit, portæ urbis ei apertæ sunt, quique Sambo familiares ac domestici erant cum numerata pecunia et elephantis occurrerunt, declarantes Sambum non hostili animo in Alexandrum fugisse, sed Musicani dimissi metu.—Arrian Exped. vi. c. 16, sec. 4; French edition, C. Müller, Paris, 1846, p. 163.

The next contribution to the test of the monetary civilization of the Indians, at Taxila, is even more emphatic and distinct in its terms, as embodied in the text of Quintus Curtius.

"Omphis, permittente Alexandro, et regium insigne sumsit, et more gentis suæ nomen, quod patris fuerat, 'Taxilen' appellavere populares, sequente nomine imperium in quemcumque transiret. 15. Ergo cum per triduum hospitaliter Alexandrum accepisset, quarto die, et 'quantum frumenti copiis, quas Hephæstion duxerat, præbitum a se esset' ostendit, et aureas coronas ipsi amicisque omnibus, præter hæc signati argenti LXXX. talenta dono dedit."—Q. Curtius, viii. c. xii. 14, 15.[2]

Such a theoretical stage of advanced development in the local currencies is practically supported by the ready adoption, on the part of the occupying Bactrian Greeks, of so many of the devices and peculiarities of the national coinages. On the one part, Agathocles and Pantaleon, in Arachosia, imitated the square form of piece,[3] accepted the current *Indian-Páli* alphabet of Aṣoka, the essential symbol of pre-Aryan civilization,[4] in some cases to the exclusion of their ethnic Greek, and even adopted a new metal, in the *Nickel*,[5] which we must suppose to have been indigenous in those

but that the inhabitants are unacquainted with money (*νόμισμα*), though their country abounds with gold and brass."—Pausanias, iii. xii. 3; translation of T. Taylor, London, 1824, i. 264.

[1] Mr. Roorke, in his translation of Arrian (A.D. 1729), was clear as to "money and elephants." Mitford, v. 418, seems to have hesitated, and epitomizes the text as "the treasury untouched and not an elephant removed." Thirlwall, vii. 53, again, is apparently dubious in the words "surrendered his elephants and his treasure."

The Amsterdam text of 1757, though embodying the word *ἀπηρίθμησαν*, admitted a possible variant of *ἀναρίθμητα*. All the later editions seem to accept *ἀπηρίθμησαν*.—Stereotype German edition, Leipzig, 1824, etc. We may perhaps be now content to receive the simple *χρήματα* (in v. cap. xx.) of Abissares as "money."

[2] To follow out more completely the meaning attached by the author to the term *signatus*, we have only to refer to the parallel passage in an earlier portion of his text. "Summa pecuniæ signatæ fuit talentorum duo millia et sexcenta; facti argenti pondus quingenta æquabat."—iii. c. xiii. 16. And the contrast in "L millia talentum, argenti non signati forma, sed rudi pondere."—v. c. ii.

[3] Ariana Antiqua, pl. vi. figs. 7, 8, 9; Prinsep's Essays, ii. 179.

[4] Prinsep's Essays, ii. 35, 40, 42; *antè*, p. 2.

[5] Cunningham, Num. Chron., viii. (1868), p. 282, and 1873, p. 188; Dr. Flight, ibid. viii. p. 305; J.R.A.S. xvii. pp. 72, 77, and iv. N.S. p. 504; Strabo, xv. i. 34; Pliny, 34, 2, and 37, 42.

As this *metallic* inquiry may have an interest for those who do not concern themselves with the historical or geographical bearings of the subject, I annex an outline of certain returns obtained by Dr. Flight. In his account of a piece of Euthydemus he prefaces his analysis by a description of the outward appearance of the metal, which is stated to offer "a bright white colour, with a very faint tinge of yellow; (and) exhibits, when broken, a fine granular fracture, of a dull grey colour, resembling that of cast steel, and has a specific gravity of 8·89."

The quantitative analysis gave the following result, which is followed up by a comparison with modern continental coin constituents:

Copper . .	77·585
Nickel . .	20·038
Cobalt . .	0·544
Iron . . .	1·048
Tin . . .	0·038
Silver . .	*trace*
Sulphur . .	0·090
	99·343

Belgian Nickel Currency.	
Copper . . .	74·4
Nickel . .	25·55
	99·95

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parts.[1] The larger division of the Bactrian Greeks, whose advance took the direction of S.E., in a similar spirit submitted themselves to square sections of metal, incorporated the official alphabet of their new dominions—in this instance the contrasted *Aryan adaptation* of an early form of Phœnician[2]—which they carried down with them beyond the vanishing point of the Vedic Aryans, without regard to local preferences, into the city of Mathurá,[3] which, judging by the *deposited* coins of the later Greek dynasties and the extant remains of the succeeding Indo-Scythians, must have been a place of considerable importance at this period.[4]

My last appeal for written testimony is to the text of *Yájnavalkya*, the advanced authority on Hindú Law, who deals with a period when the Greeks had altogether passed from the Indian stage, and the Kadphises *Yuchi* had been supplanted *inter alia* by their Kanerki successors.

As might be expected, references to specific coins in "Books of Law" are infrequent; but the two verses subjoined open out an unexpected range of inquiry, which may even challenge the date of the author who employs such a term as "*náṇaka.*"

"Sec. 240. Whoever falsifies scales, or a royal order ("copper-plate Grants, by the head of the State," Wilson), or a measure, or a coin (**नाणक** *náṇaka*),[5] likewise whoever (knowingly) uses them (so falsified), shall be made to pay the highest fine.

"Sec. 241. A trier of coin who pronounces a false one to be genuine, or a genuine one to be false, shall be made to pay the highest fine."[6]—Yájnavalkya, Dr. Roer's Calcutta edition, p. 67.

To test this passage completely we must admit for the moment the secondary commentary

A postscript is added, regarding later analyses, explaining that a second example of Euthydemus's money contained "no silver, a trace of tin, much copper, a little iron, a considerable amount of nickel, and a trace of zinc. The second coin, of the reign of Agathocles, was found to be composed of much copper, a little iron, a considerable amount of nickel, a trace of tin, and it contained no silver. All the three coins, therefore, are made of the alloy of copper and nickel."

[1] Strabo mentions (xv. ii. 10) that tin was found in Drangia; it is possible that *nickel* may have been the white metal referred to. Onesicritus is also quoted as deposing that in Carmania there are mines of silver, copper, and minium, so that there may have been also mines of nickel in that proximate province from which the Arachosian coins were made. An idea has been put forth that these Nickel pieces are all forgeries, but I think numismatists may trust Gen. Cunningham's perception of true and false coins, even if intractable nickel would not have been the last metal selected for manipulation. I imagine these coins were intended to pass at the same rate as the silver money of identical stamp. As regards value, we have the evidence of Scripture for "fine copper precious as gold" (Ezra viii. 25, 27), and Josephus's parallel testimony for "copper more precious than gold" (vii. 53, xi. 5). And Strabo bears witness more directly to local values in "drinking cups and lavers of Indian copper, most of which were set with precious stones" (xv. i. 69). Apollonius of Tyana, on his arrival at the Kophen river, observed "that the Indian money was of orichalcum and bronze—purely Indian, and not stamped like the Roman and Median coins." Mr. Priaulx in a note adds, "the Indian money is 'υλη κεκομψευμενη, metal *refined, prepared;* and the Roman κεχαραγμενη, *stamped.*"—J.R.A.S. xvii. 72. The *orichalcum* may possibly refer to the *nickel* pieces, the copper to the imperfectly preserved square pieces the Bactrian Greeks left in such multitudes on these old sites. Mr. Masson remarks, "I suppose that no less than 30,000 coins, probably a much larger number, are found annually on the *dasht* or plain of Beghrám."—J.A.S. Bengal, 1834, p. 154; Prinsep's Essays, i. p. 81. See also the passage from Krinagoras quoted by Gen. Cunningham,

Χάλκεον ἀργύρεῳ με πανείκελον, Ἰνδικὸν ἔργον.
Ὄλπην . . . . . .

—Numismatic Chron. 1873, p. 190; Marco Polo, xiv. and xx.; Kenrich's Phœnicia, p. 206.

[2] Prinsep's Essays, ii. 144; Numismatic Chronicle, iii. N.S. (1863), p. 225; J.R.A.S. Mr. Norris, viii. 303; Prof. Wilson, xii. 153; Prof. Dowson, xx. 1863, p. 221.

[3] Arrian Indica, viii., quoting Megasthenes, says, Τοῦτον τὸν Ἡρακλέα μάλιστα πρὸς Σουρασηνῶν γεραίρεσθαι, Ἰνδικοῦ ἔθνεος, ἵνα δύο πόλιες μεγάλαι, Μέθορά τε καὶ Κλεισόβορα, καὶ ποταμὸς Ἰωβάρης πλωτὸς διαρρέει πὴν χώρην αὐτῶν. The variant of Κρισνόβορα has been suggested in lieu of Κλεισόβορα.—C. Müller, p. 318; Pliny, vi. 22, 19; Ptolemy, vii. 1, Μόδουρα ἡ τῶν Θεῶν.

[4] Gen. Cunningham, J.A.S. Bengal, vii. (1854) p. 681; Archæological Report for 1871–2, pp. 14, 30; Prinsep's Essays, ii. 197; Mr. E. C. Bayley and Bábu Rájendra Lál, J.A.S. Bengal, 1870, p. 117; Prof. Dowson, J.R.A.S. vol. v.' N.S. p. 182.

[5] Professor Wilson remarks that the name of **णाणक** *ṇáṇaka* occurs in the play of the *Mrichchhakati* (act i. scene 1), and the commentary explains the *ṇáṇaka* as **शिवाङ्कटङ्क** *Śivánka-tanka*, or "coin with the mark of Śiva."

[6] A curious instance of the modern village law for the punishment of incompetency in like cases is to be found in my Pathán Kings, p. 344.

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quoted below of a "coin with the mark of Ṣiva." The particular series alluded to clearly belongs to the age of the *Yuchi* Kadphises, whose conjoint gold and copper pieces are constant in their adherence to the *reverse* device of the god "Ṣiva" and his special equipage the "Bull Nandi."[1] It is probable that the abundant issues of this type of money in gold secured its overwhelming prevalence amid the ordinary currencies of the country till the accession of another ethnic wave of Scythicism, in the Kanerki Kings, who impart their titles of PAO NANO PAO[2] to the designation of the *náṇakas* named in the text,—a royal designation, which retained so much favour in the land that it continued in use through many mintages, till it fades away on the small silver pieces of Gujarát, with their scarcely recognizable Greek letters and the revived shadow of the *Ṣaivik Bull* reverse, which disappears with the coins of Skanda Gupta, on the, at last confessed, rebellion of his vassal *Senápati* Bhaṭṭaraka,[3] and the final extinction of the Gupta race, which constitutes so remarkable a date-point and era in the later annals of the land.[4]

[1] Ariana Antiqua, x. figs. 6, 7, 8, 9, etc.

[2] Ariana Antiqua, xii. 1, etc. Some curious coincidences are associated with the title of NANO, both with regard to the goddess NANAIA of the Western nations and the *Youe-Chi*, "de race lunaire," the *Chandravansas*, etc. It is possible that the original meaning of PAO NANO PAO may have been "King Moon King," or King of the Lunar Race.—J.R.A.S. xii. 15.

[3] Numismatic inquiries are always liable to be discomfited in their assumed results by authentic additions to written or competent traditional history; and I confess that I was startled by the appearance of the subjoined new light lately thrown upon the avowedly obscure annals of the GUPTAS. Their silver coinages on the west coast presented unusual difficulties in the way of any definite classification on the one part, or the explanation of their anomalies on the other; but I am glad to be able to say that *Numismatics* did not betray me on this occasion, and that on the mere typical indications of the coins themselves, and the contrasts they disclosed with the Imperial issues, I felt myself competent to pronounce in 1848 that "it may indeed be a question whether these Saurâshtran silver pieces of Skanda Gupta, with the Bull reverse and other types of the ample Skanda Gupta coinage, did not constitute the bulk of the entire currency under, if many of them were not actually struck by, the earlier members of the Valabhi dynasty, while acting as *local* sovereigns, on behalf of the Gupta suzerain."—J.R.A.S. vol. xii. p. 9. (See also p. 66, and Prinsep's Essays, ii. p. 98.)

Major Watson's recent additions to our power of unravelling the tangled web of this section of Indian history are given in his own words, and, as I have intimated, if the coins were not prophetic, the interpreter must have been in fault. We now see that the treacherous *Senápati* retained his suzerain's name to the last, but associated it with the special symbol or device of his own family, which subsequently figures prominently on the public documents of the new dynasty. On some of the later and more degraded types of the western silver money (Journ. Royal As. Soc. xii. pl. ii. figs. 35–38) I imagine I can read

श्री भट्टरकस रज्ञो मह क्षत्रपस

Srí Bhaṭṭarakasa rajno maha Kshatrapasa.

The obverses of these coins bear a rough imitation of the profile and flat *Kausia* of the Sáh Kings. The reverse device, though debased almost past recognition, retains palpable traces of a reproduction of the Minerva Promachos of Menander's Hemidrachmas, which were once so largely current at Baroach (Vincent's Periplus, ii. 401).

"The bards relate that Váļá Rájá, son of Váļá Warsingji, reigned in Junágadh and Vanthalí. . . . Ráma Rájá was of the Váļá race. It is said in Saurâshtra that previous to the rise of the kingdom of Junágadh-Vanthalí, Valabhinagar was the capital of Gujarát. The rise of Valabhi is thus told by the bards. 'The Gupta kings reigned between the Ganges and Jamná rivers. One of these kings sent his son Kumára pál Gupta to conquer Saurâshtra, and placed his viceroy Chakrapáni, son of Prándat, one of his Amírs, to reign as provincial Governor in the city of Wámanasthalí (the modern Wanthali). Kumára pál now returned to his father's kingdom. His father reigned 23 years after the conquest of Saurâshtra and then died, and Kumára pála ascended the throne. Kumára pál Gupta reigned 20 years and then died, and was succeeded by Skanda Gupta, but this king was of weak intellect. His *Senápati*, Bhaṭṭaraka, who was of the Gehlotí race, taking a strong army, came into Saurâshtra, and made his rule firm there. Two years after this Skanda Gupta died. The *Senápati* now assumed the title of King of Saurâshtra, and, having placed a governor at Wâmanasthalí, founded the city of Valabhinagar. At this time the Gupta race were dethroned by foreign invaders.'"—Major J.W. Watson, Legends of Junágadh, *Indian Antiquary*, Nov. 1873, p. 312.

[4] This date of 319 A.D. for the extermination of the Guptas and the rise of the Valabhis was first obtained from the Arabic MS. of Abú Rihân Al-Birúní, who followed up his inquiries into the history and antiquities of India, when present in person in that country in A.D. 1032, in the suite of Mahmûd of Ghazní. The Valabhi initial epoch thus defined was at once seen to be corroborated by the extant Patan Somnáth Inscription, which gives its own date in the corresponding eras of Vikramáditya 1320, Hijrah 662, and Valabhi 946. The Guptas themselves seem to have followed the Saka era (59 A.D.) in their computations, as we have two Inscriptions of Chandra Gupta I. dated severally *San* 82 and *San* 93, which would fitly correspond with our new information, and place his reign in 161-172 A.D. Major Watson's traditionary evidence goes to show that we may work upwards from the authorized starting-point of A.D. 319 by some 50 years at least, if not much more, for the domination of the fifth, sixth, and seventh kings of the Gupta family, whose

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There are some contrasts between these two prominent series of Indo-Scythic coins which it is necessary to notice. The special gold *náṇakas* do not employ the Hindú figure of Ṣiva on the reverse, but the general range of their devices and those of the parallel copper coinage indicate the free and liberal acceptance of the types of endless varieties of discordant creeds, the leading items of which I have attempted to indicate in a late paper on the Indo-Sassanian point of contact with the local coinages on the western borders of Afghánistán.[1] The Kadphises Scythians make use of the Bactrian alphabet in the counterpart legend, following the leading Greek superscription, as had been the recognized custom of the Greeks themselves. The Kanerki horde restrict the epigraphs on their mintages to Greek legends alone; though their subjects, as will be seen from the Inscriptions collected below, still retained in the localities into which it had penetrated the Bactrian character founded on Phœnician models; while the dwellers in the Eastern districts preferred the indigenous *Páli*, of which Aṣoka's Inscriptions afford us the earliest extant type.

INDO-SCYTHIAN INSCRIPTIONS.

In the Indo-Páli Alphabet.

Mathurá.—KANISHKA. *Mahárája Kanishka. Samvat* 9.

HUVISHKA. *Mahárája* DEVAPUTRA *Huvishka. S.* 39.

Mahárája RÁJATIRÁJA DEVAPUTRA *Huvishka. S.* 47.

Mahárája Huvishka. S. 48.

VÁSUDEVA. *Mahárája Rájátirája* DEVAPUTRA *Vásu*(*deva*). *S.* 44.

Mahárája Vásudeva. S. 83.

Mahárája Rájatirája, SHÁHI, *Vásudeva. S.* 87.

Rája Vásudeva. S. 98.[2]

reigns are vaguely measured by oral report, and by allowing Samudra Gupta, the fourth on the list, a comparatively lengthened reign, and placing the year 82 at an early period after the accession of Chandra Gupta I., we may get something like a reasonable approximation for the rise of the family towards the middle of the second century A.D. This would give a long average, it is true, for the seven reigns, of twenty-four years each (318—150=168), including Śrí Gupta, the founder of the house, who, although his own successors deny to him the more exalted titles they assume for themselves, both effectively reigned and struck coin (Prinsep's Essays, ii. p. 94). The average of twenty-four years to a reign is by no means an excessive estimate in Indian annals (J.R.A.S. xii. p. 36), even if we were sure that we had the full and continuous succession, without breaks or omissions, in the subjoined list which has been preserved in the contemporaneous inscription on the Bhitari Lát (J.A.S. Bengal, vi. 1 and 969).

1. Gupta.
2. Ghaṭot Kacha.
3. Chandra Gupta I.
4. Samudra Gupta.
5. Chandra Gupta II.
6. Kumára Gupta.
7. Skanda Gupta.

There is ample evidence to support Al-Bírúní's statement that the era of the Guptas was "the era of their extermination," inasmuch as we have inscriptions dated 141 years after the repose of Skanda Gupta (Prinsep's Essays, i. p. 250), and one on the Morbi Grant of 903 A.D., which still refers to the close of the Gupta rule in the terms, "585 years of the Guptas having elapsed" (Indian Antiquary, September, 1873, p. 258. See also J.A.S.B. xxx. p. 7, and xxxii. p. 429). I have from the first contended that the early Valabhis did not make use of their own dynastic date, but employed the ordinary Saka Kála (J.R.A.S. xii. 5, n.), and I have little doubt but that when we come to compare and determine the *true* dates on their land-grants and other public records, we shall be able to reconstruct a satisfactory list of the regal successions. I complete this note by the quotation of the more important passages of Al-Bírúní's work, the "Táríkh-i-Hind," which has been partially translated by M. Reinaud in his Fragments Arabes, etc. (Paris, 1845), and of which a full English version is now in course of preparation, for the Oriental Translation Fund, by Dr. Sachau, of Vienna. "On emploie ordinairement les ères de Śrí Hárṣha, de Vikramaditya, de Saka, de Ballabha et des Guptas. . . . L'ère de Saka, nommée par les Indiens Sakakála, est postérieure à celle de Vikramaditya de 135 ans. . . . Ballabha, qui a donné aussi son nom à une ère, était prince de la ville de Ballabha, au midi de Anhalwara, à environ trente yodjanas de distance. L'ère de Ballabha est postérieure à celle de Saka de 241 ans. . . . Quant au Gupta Kála [ère des Guptas], on entend par le mot *Gupta* des gens qui, dit on, étaient méchants et puissants; et l'ère qui porte leur nom est l'époque de leur extermination. Apparemment, Ballabha suivit immédiatement les Guptas; car l'ère des Guptas commence aussi l'an 241 de l'ère de Saka."

[1] Numismatic Chronicle, 1872, pp. 119, 271.

[2] Journal of the Royal Asiatic Society, vol. v. N.S. p. 182, Professor Dowson. Archæological Report, vol. iii. p. 29, General Cunningham.

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In the Bactrian-Páli Alphabet.

Other localities.—Baháwalpúr. *Maharaja Rajadiraja* Devaputra *Kanishka.*
Samvat 11, on the 28th of the (Greek) month of Dæsius.[1]

Manikyála Tope. *Maharaja Kaneshka,* Gushana *vaṣa samvardhaka.*
"Increaser of the dominion of the Gushans" (Kushans). *S.* 18.[2]

Wardak Vase. *Maharaja rajatiraja Huveshka. S.* 51, 15th of Artemisius.[3]

In addition to these Bactrian-Páli inscriptions, we have a record of a king called Moga (Moa?), on a copper plate from Taxila, wherein the *Satrap Liako Kusuluko* (Kozola?) speaks of the 78th year of the "great king, the great *Moga,*" on the 5th of the month of Panæmus.[4]

The geographical distribution of the Inscriptions given above provides us with a safe guide towards tracing the extent and direction of the spread of the Semitic characters which the Aryans brought down with them in their passage into India. Its use in Northern India is further determined by its appearance in conjunction with the local alphabet on the coins of Behat,[5] and in its association with the Greek on the hemidrachmas of Strato and his successors, which there is reason to attribute to a mint at or proximate to Mathurá.[6] On the other side of the continent, below Baháwalpúr, whose Inscription attests its march in that direction, faint traces of its progress down the Indus may be discovered in the *quasi*-Sauráshtran issues of *Chastana,* where it appears in combination with the finished Páli alphabet of the province of Gujarát.[7]

As a preliminary to the consideration of the Indo-Semitic adaptation of phonetic definitions, it is necessary to examine the characteristics of the indigenous alphabet of India, and to define its geographical limits. This character under its lapidary form is presented to us for the first time when Aṣoka, in about B.C. 250, originated the practice of recording his edicts, as manifestos to the many nations who acknowledged his sway, on rocks and pillars. It is here seen to have reached a considerable degree of maturation, such as would forbid any supposition that it was newly devised or in any way constituted the crude prototype of its class. This alphabet, or parallel derivatives from a common stock, covers a superficial area extending from Arachosia to Annam on the one part; and it is found, in the earliest form of which we have knowledge, concurrent in Ceylon, and employed, as in India, in lapidary epigraphy by the first missionaries and converts to Buddhism in that island. As far as can be ascertained from the various styles of writing into which the generic archetype was made to diverge, their peculiarities seem to have been more distinctly due to the different materials used for writing[8] than to any defined idea of departing from the old models. The divergences, it is

[1] J.A.S. Bengal, 1870, p. 69, Mr. Bayley; J.R.A.S. iv. N.S. 1870, p. 500, Prof. Dowson, and v. N.S. 1871, pl. 4, p. 196.

[2] J.R.A.S. xx. 1863, p. 251, Prof. Dowson. Prinsep's Essays, i. p. 145.

[3] Ariana Antiqua, 117; J.R.A.S. xx. 259; Prinsep's Essays, i. p. 163, pl. x.; J.A.S. Bengal, 1861, p. 337, Rájendralála Mitra.

[4] J.R.A.S. xx. p. 227, and J.A.S. Bengal, 1863, pp. 130, 301, 421. Prinsep's Essays, ii. 85, 87, 202, 223. The exact site of the discovery of this plate is stated by Mr. Delmerick to have been a place still called *Topi*, after its own ancient tumulus, about two miles N.E. of the ruins of Koṭ Atial. The same officer adds that the name of the Satrap *Liak* is still common among the Hindús of that part of the country.—J.A.S. Bengal, 1870, p. 90.

[5] Prinsep's Essays, pl. iv. fig. 1, etc.; J.A.S.B. 1834, p. 221.

[6] Prinsep's Essays, ii. p. 197; J.A.S.B. 1854, p. 681.

[7] Journ. Bombay Branch Royal Asiatic Society, 1867, and viii. 234, 243.

[8] Wheeler, in his "Rámáyana," page 32, thus describes "how Ráma learnt his alphabet:"—"The preceptor, Vasishtha, then took a chalk stone, and drew the vowels upon the floor, and directed the boys to run over each letter three times . . .; (going to school) each (boy) carried his ink bottle in his right hand, and over his left shoulder was his satchel containing books, reeds, and

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true, are marked and startling at first sight; but, on a closer examination, no one can contest James Prinsep's emphatic verdict, that they all betray a common parentage.

The most important point in the present inquiry is the Arachosian ethnic continuity and community of alphabets—a discovery Prinsep would specially have rejoiced in, had the available data then justified any such unexpected suggestion. This association is now established by evidence from various independent sources:—The use of the Indian Páli or inscription letters on the coins of the Greek kings, Agathocles and Pantaleon, who first penetrated into those parts, and confessedly held Arachosia, coupled with the fact that no other Bactrian Greek ever employed this character on their metropolitan or provincial coinages. Next we have the traditional Γάνδαραι Ἰνδῶν ἔθνος,[1] and Dr. Caldwell's discovery of the Túránían language beyond the Indus, in the identities of Brahui and Drávidian speech; while the connexion of these severed branches with the language of the Scythic Inscription of Darius at Behistún[2] brings us back into *rapport* with the dominant Túránianism of the prehistoric world.

The Indian Páli alphabet itself, though stiff and formal, as becomes a lapidary character,[3] is simple and well devised in its normal outlines, though its aspirates and seemingly later additions are not so systematically designed.[4] At the time when it is first met with in Aṣoka's edicts, it is found to be deficient in certain letters necessary for the due expression of Sanskrit,[5] and possessing, on the other hand, a class of consonants requisite in its own system, but useless for the definition of Aryan languages. Its vocalic scheme was full and consistent, especially in the configuration of the long and short *e*, *é*, and *o*, *ó*, which in the later Sanskrit adaptations were transformed into the inconsecutive sounds of *e*, *ai*, and *o*, *au*. I do not wish to make too great a demand upon the subdued confidence of the representatives of ancient Drávidian literary progress; but when I find

white palm leaves. . . And when they knew all the vowels, they were taught all the other letters of the alphabet."

The commencement of the education of Buddha is thus related in the "Lalita-Vistara:"—"The Bodhisatva took a leaf to write on (*lipiphalaka*) made of sandal-wood. He then asked Viṣvâmitra what writing he was going to teach him. Here follow 64 names, apparently the names of alphabets. . . The alphabet which he learns is the common Sanskrit alphabet, with the omission of the letters *l*, *ṛi*, and *ṛí*. It consists of 45 letters."—Max Müller, Sanskrit Literature, p. 518.

[1] Hecatæus, Fr. 178, 179; Herodotus, iii. 91, viii. 66; Arrian Indica, caps. i. iv.; Strabo, xv. i. 11, 25, 30; ii. 9; Pliny, vi. 23; H. H. Wilson, Asiatic Researches, xv. 103, and Ariana Antiqua, p. 131. There is a curious notice in Mas'audi about the "Kúch, Belúch, and Jats inhabiting Kermân" (i. p. 254, Paris edit.).

[2] Norris, "The Behistún Inscription of Darius," J.R.A.S. xv. pp. 97, 142. "Gandara or Parupamisana," Oppert, Journal Asiatique, 1854, p. 144; Indian Antiquary, 1872, p. 23. In Páṇini, Sankala stands at the head of the group Sankaládi, the second name in which is Pushkala, the ancient capital of Gándhára, and the Peukulas of the European geographers.

[3] The Indian Páli or Lát Alphabet.

Consonants.

k	*kh*	*g*	*gh*	*ṅ*
ch	*chh*	*j*	*jh*	*ñ*
ṭ	*ṭh*	*ḍ*	*ḍh*	*ṇ*
t	*th*	*d*	*dh*	*n*
p	*ph*	*b*	*bh*	*m*
y	*r*	*l*	*v*	*h*
s				

Initial Vowels.

a *á* *i* *u* *ú* *e* *é* *o*

Medial Vowels.

ka, *ká*, *ki*, *kí*, *ku* *kú*, *ke*, *ké*, *ko*.

[4] Journ. As. Soc. Bengal, "Proceedings," February 5, 1867; J.R.A.S. vol. v. N.S. p. 422.

[5] ष *ṣ* and ष *sh*, क्ष *ksh*, ऋ *ṛi*, ॠ *ṛí*, ऌ *ḷri*, ॡ *ḷrí*, and the Vedic ॐ *lr*.

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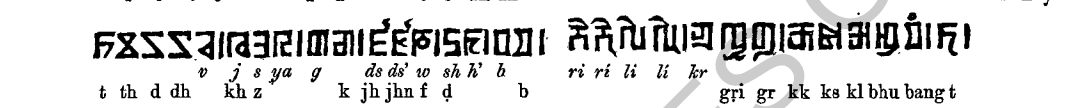
Dr. Caldwell arranging the Tamil suite of vowels as *a*, *á*; *i*, *í*; *u*, *ú*; *e*, *é*; *o*, *ó*, and simultaneously see one of our best exponents of Mongol and Chinese palæography reproducing the same sounds of *a*, *á*; *e*, *é*; *i*, *í*; *u*, *ú*; *o*, *ó*, from the Báshpah alphabet at Peking and Nankow,[1] I am inclined to think that there must be more in the Túránianism of sounds than some modern critics are prepared to admit. It is a high compliment to the archaic alphabet of Aṣoka that its letters, but slightly modified to suit the Chinese taste, should have been elected to the honour of superseding all less perfect systems of writing that curious nation was able to admit to competitive examination in the reign of Kublai (A.D. 1269).

BÁSHPAH ALPHABET PRESERVED ON A PALL IN THE LAMASARY OF YUNG-HO-KUNG IN PEKING.

om a á e é i í u ú o ó k kh ng ch ch' gn t th n p ph m y r l b
i í e é u ú o ó ah áh bh s h y



v j s ya g ds ds' w sh h' b ri rí li lí kr
t th d dh kh z k jh jhn f ḍ b gṛi gr kk ks kl bhu bang t

[The italic letters are Mr. Wylie's. I have added some suggestive identifications of the optional variants in Roman type.]

The alphabet, as we here find it, retains far more of the primary outlines than the Tibetan, which was stereotyped and rendered constant in the forms of its letters by its use, engraved on wood blocks for printing purposes, during the seventh century of our era,—so that we must refer the passage of Aṣoka's *láṭ* character through the gorges of the Himálaya to a very early age, and its survival as the fittest constitutes at least a lasting tribute to the inventive powers of the natives of India. The conclusions of the leading scholars of the day regarding the unacknowledged appropriation by the Sanskrit grammàrians of the Drávidian *cerebrals* have been quoted in full at p. 21.

I may here advert, parenthetically, in connexion with this early reception of the literal forms of India by the Asiatic races dwelling to the northward and eastward, to the apparently parallel transfer of so much of the leading spirit of the Proto-Buddhism of Aṣoka's edicts and its incorporation into the Chinese ritual of that creed, that we find the first commandment of the latter

[1] Mr. Wylie prefaces his remarks upon this curious document, which I suppose to have been one of the standard key copies of the variants of the official alphabet, preserved for reference in the interpretation of inscriptions and other manifestos. "The inscription on the arch of the Pagoda, five miles to the north of the Nankow Pass, on the great wall of China, is engraved in the characters of six different nations. . . Two of the parts are inscribed in horizontal lines at the top, in antique Devanágarí [*i.e. Báshpah*] and Tibetan characters respectively, twenty feet long on each wall. Below these are four compartments inscribed respectively in Mongol, Ouigour, Neuchih, and Chinese characters, all in vertical lines. . . . When on a visit to the great lamasary *Yung-ho-kung*, in Peking, I observed in one of the temples a pall inscribed in the common Tibetan character, with a horizontal heading in a character which was unknown to me. *I* thought it of sufficient interest to take a copy of it [reproduced above]. I conclude, from examination, that it is simply the alphabet, and I have identified the greater number of the letters with tolerable probability."—J.R.A.S. v. N.S. p. 27.

The imperial decree of Kublai in A.D. 1296 goes on to declare :—

"Maintenant la culture des lettres fait chaque jour de nouveaux progrès ; mais les caractères d'écriture, qui n'étaient pas assortis aux lois constitutives du génie de la nation, ne peuvent réellement plus lui suffire. C'est pour ce motif seulement qu'il a été ordonné au précepteur du royaume, Pa'-sse-pa, de former de nouveaux caractères mongols avec lesquels on pût transcrire d'autres langues et reproduire en général toutes les compositions littéraires. Ces caractères ont pour but, en déterminant fidèlement les paroles, de faire pénétrer partout la connaissance des faits ; et, à dater d'aujourd'hui, à l'avenir, toutes les fois qu'il sera publié des documents revêtus d'un cachet officiel, on ne se servira plus, dans tous ces documents, que des nouveaux caractères mongols." . . . 'On fait observer ici que . . . les règles de formation des caractères mongols n'étaient absolument qu'une transformation du *devanágarí* de l'Inde.' — M. Pauthier, in the Journal Asiatique, 1862, page 14. See also Journal Asiatique, 1860, page 327.

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phrased, "From the meanest insect up to man, thou shalt kill no animal whatever!" while the first sin is denounced as "the killing of animals."[1] The opening passage of Aṣoka's "edict of religion" (*Dhammalipi*) declares "the putting to death of anything whatever that hath life . . . shall not be done."[2]

The coincidence may merely imply that this was the true germ of Buddhism; indeed, no one can fail to remark the change which came over the later developments of that faith in India—a contrast which induced Professor Wilson to maintain for a long time that the edicts of "Piyadasi, the beloved of the gods," were not the utterances of the Maurya Aṣoka, and that their purport had but dubious identity with Buddhism.[3]

The continuity and exclusive domain of the *Indo-Páli* alphabet, which under Aṣoka was accepted and acknowledged in his Inscription at Khalsi, on the Upper Jumna, and retained undisturbed at Girnár in Gujarát, and over all the rest of India, is first broken in upon by Aṣoka's own counterpart Inscription at Kapurdigiri, on a branch of the Kophes or Kábul river, in the Pesháwar valley, which is embodied in Bactrian *Semitic* characters, and presents the further peculiarity of disclosing a larger Sanskrit element in its language than the contemporaneous Southern texts. With the exceptions previously noticed, all the Greek Princes of Bactria employed this latter alphabet on the reverses of their coins, in conjunction with their own proper Greek epigraphs on the obverse face; and it was this combination of names and titles which, in the first instance, encouraged Prinsep and Lassen to investigate the nature of the alphabet itself, and to lay the foundations of a decipherment largely advanced by Mr. Norris's and Professor Wilson's[4] collation and comparison of the joint texts of Aṣoka's biliteral Inscriptions; which have since been tested, and the subject fairly exhausted, by Professor Dowson's critical examination of all the available materials, aided by the opportune accession of the Taxila Inscription of the Satrap *Liak*,[5] which, in its amplified combinations and definitions of letters, afforded an insight into many hitherto obscure points in this system of palæography. General Cunningham and myself have each to claim a minor share in these conclusive results, he as having worked with Prinsep in his best days, while upon me devolved the duty of editing the posthumous Essays of our common teacher.[6] In that publication, I was able to demonstrate beyond doubt the Phœnician origin of the Bactrian alphabet, and to discriminate the adapted forms of forty-one letters already evolved out of the twenty-two signs which completed the original alphabet of the West. I was further enabled to follow out the transformations of the forms of the characters incident to their transfer from a non-vocalic scheme of writing to the supremely exacting demand for that class of letters in the Sanskrit tongue, and, in the process, to trace the curious effect of the insertion of the newly devised vowels in the body of the normal Semitic letters, which so strangely altered their primary configuration and identity.[7]

[1] Gutzlaff, China Opened, ii. 216. London, 1838.

[2] This is James Prinsep's version. Prof. Wilson has: "The putting to death of animals is to be entirely discontinued."—J.R.A.S. xii. 164. The Ceylon Buddhists, who so early took to relic worship, and superseded the old *Sanga* or "Assembly" by their own dominant Hierarchy, still retain, as the first of the ten precepts, "Abstinence from destroying life."—J.R.A.S. vii. N.S. p. 8. See also Prinsep's Essays, i. 16.

[3] J.R.A.S. xii. 249., and xvii. 357. See also my edition of Prinsep's Essays, ii. 36.

[4] J.R.A.S. xii. p. 153.

[5] J.R.A.S. xx. p. 221.

[6] Essays on Indian Antiquities of the late James Prinsep, F.R.S. John Murray, London, 1858.

[7] Prinsep's Essays, ii. p. 144. See also my later article in the Numismatic Chronicle, on "The Bactrian Alphabet," December, 1863, p. 225.

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And this opens out the larger inquiry, as to how far Páṇini, with this alphabet alone at his command, could have pretended to fix and define the laws of Sanskrit *sandhi* out of a scheme of letters avowedly deficient, even in its most advanced stage, of a full series of discriminative long and short vowels, and inherently opposed to every mechanical facility of combination of consonants.[1]

If the great grammarian "rejoiced in the economizing of half a short vowel,"[2] he must have been sorely tried if restricted to the employment of an alaphabet which was incapable of giving expression to anything but a simple *i, u, e, o*,[3] though it had acquired the faculty of defining a long *á*, by the addition of a dot outside the recognized configuration of that vowel.

As he himself refers vaguely to *Yavanáni-lipi*, we must conclude that he did not habitually use this style of writing, but wisely took advantage of the more perfect alphabet of the continent at large, still uneradicated at Taxila, with its complete system of long and short vowels, and the unlimited though only partially developed power of conjunction of consonants, above or below the line of writing, without the loss of a definitive fragment of either letter. How much this exotic Phœnico-Aryan alphabet owed to its Indian domestication may be seen in the contrast presented between the simple letters of Aṣoka's Kapurdigiri edict, dating about 250 B.C., and the advanced development of compound consonants in this officially patronized character, exhibited in the Taxila copper-plate inscription of the King Moa, who may roughly be said to date some two centuries later. However, official recognition and centuries of use in public documents could not save this most inconvenient and unsuitable alphabet from extinction before the superior merits of the Indian Páli; and though it lingered in its ancient home on the Kábul river, as the chosen character of the Buddhist faith in those parts,[4] all trace of it is speedily lost; so that when the Sassanian influence first penetrated into Afghánistán, we find the square letters of the Devanágarí alphabet in full acceptance, a position freely extended to them in their conjoint employment with the Pehlvi of Persia[5] and the as yet undeciphered type of Scythic,[6] while their final triumph is marked by their exclusive adoption by the Brahmanical dynasty of Syala and Samanta Deva.[7]

[1] "The observations I am going to make may tend to show that there is much more evidence in Páṇini than this solitary word (*lipikara*) for the assumption that he was not merely conversant with writing, but that his grammar could not even have been composed as it is now, without the application to it of written letters and signs."—Goldstücker, Preface to the Mánava-Kalpa-Sútra, p. 17. London, 1861. "Páṇini's object is to record such phenomena of the language as are of interest from a *grammatical* point of view. Sometimes the words which belong to his province will be at the same time also of historical and antiquarian interest; but it does not follow at all, that because a word of the latter category is omitted in his rules, it is absent from the language also."—p. 18.

[2] "The matter thus to be inculcated must have been written in such a manner that an author rejoiceth in the economizing of half a short vowel as much as in the birth of a son."—p. 25.

"When Páṇini speaks of two *varṇas, yí, i.e.* of a *varṇa* y and a *varṇa* i, we must conclude that *varṇa* did not apply to the spoken sound, but to the written sign, since the value of *y* without a vowel would be unpronounceable." . . . "*Varṇa* is used by Kátyáyana and Patanjali in the same manner as in Páṇini's Sútra, which speaks of the *varṇa y*, viz. of *unutterable consonantal sounds*, which therefore must have been written signs."—p. 39. See also pp. 50, 52, 53, 57, 59, etc.

[3] All these medial vowel signs were either imitated or indirectly derived from the system of definition already in use in the *lát* alphabet.—Prinsep's Essays, ii. pp. 146, 160.

[4] Masson's Discoveries in the Topes, etc., Ariana Antiqua, pp. 55, 84, 111, 114, 118, pl. iii. fig. 11.

[5] Prinsep's Essays, ii. p. 107; J.R.A.S. xii. p. 342.

[6] J.R.A.S. xii. p. 332.

[7] J.R.A.S. ix. p. 177; Prinsep's Essays, i. p. 299, pl. xxv. Pathán Kings of Dehli, p. 57. Reinaud, "Fragments Arabes," quoting Al-Bírúní. Journal Asiatique, September, 1844, p. 295. See also the same writer, Mémoire sur l'Inde. Paris, 1849, p. 210.

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CHAPTER III.

COINS, *PROPER*, AS DISTINGUISHED FROM BULLION.

THE growth and development of the normal Indian weights into square pieces of metal, which constituted alike measures of weight and measures of value, mark the *fons et origo* from which numismatists must trace the parallel progress of the art of coining in coincidence with the maturing civilization of the nation at large. Any attempt at a comprehensive treatment of the subject would be futile, if the data depended solely upon legendary testimony—Túránian or Aryan, Buddhist or Brahmanical; but, fortunately, the sequence of tentative and periodic mechanical adaptations coincides in a remarkable degree with the sifted evidence contributed by either race or by the advocates of either creed: so that it may be possible to reconstruct from the materials available a satisfactory sketch of the progressive stages of technic skill and the home demands upon the craft, till we reach, at last, the complete ideal of a money coinage.

It would be obvious to the most casual inquirer, perusing the precepts and enactments embodied in the Statutes of Manu, that there must have existed some recognized and conventional means of meeting the ordinary wants of commerce and exchange, incident to the state of society therein typified, such as would involve immediate liquidation or ready means of payment in some tangible form. The scale of fines, the subdivisions of the assessments of tolls, the elaboration of the rates of interest,[1] and even the mere buyings and sellings adverted to, so far in advance of any remnant of the usage of barter, would necessitate the employment of *coined* money, or some introductory or precursive scheme of equable divisions of metal, authoritatively or otherwise current by *tale*,[2] and emancipated from the necessity of weighing and testing each unit as it passed from hand to hand. We need not attempt to settle the correct theoretical definition of coined money, or what amount of mechanical contrivance is required to constitute a coin *proper*.[3] It is sufficient to say that we can produce flat pieces of metal, some round, some

[1] Manu, viii. 140: "A lender of money may take in addition to his capital . . . $\frac{1}{80}$ part of 100, or $1\frac{1}{4}$ by the month." 142: "He may thus take *in proportion to the risk* in the direct order of the classes, two in the hundred *from a priest*, three *from a soldier*, four *from a merchant*, and five *from a mechanic*, . . . but never more, as interest by the month." See also viii. 152, "usury," and xi. 62. "The tax on *gains* on money" is also specified at $\frac{1}{20}$ (x. 120).

[2] One example may suffice. "The toll at a ferry is one *pana* for an empty cart; half a *pana* for a man with a load; a quarter for a beast used in agriculture, or for a woman; and an eighth for an unloaded man."—Manu, viii. 404.

[3] I annex a note from Marco Polo showing how late a similar system of substitutes for coins continued in force in certain parts of Asia. "The money matters of the people are conducted in this way. They have gold in rods, which they weigh, and they reckon its value by its weight in *saggi*, but they have no coined money. Their small change is made in this way. They have salt which they boil and set in a mould, and every piece from the mould weighs half a pound. Now eighty moulds of this salt are worth one *saggio* of fine gold." Col. Yule adds a note on the authority of M. Francis Garnier, that at "Seumao and Pouheul [*Esmok* and *Puer*] silver weighed and cut in small pieces is in our day tending to drive out the custom" of the use of salt as money.—Colonel Yule's Marco Polo, vol. ii. pp. 35, 37.

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square or oblong, adjusted with considerable accuracy to a fixed weight, and usually of uniform metallic purity, verified and stamped anew with distinctive symbols by succeeding generations, —which clearly constituted an effective currency long before the ultimate date of the engrossment of the Institutes of Manu. The silver pieces of this class, the *puráṇas* of the Law-books, are found in unusual numbers, and over almost the entire length and breadth of Hindústán,—starting from the banks of the sacred Sarasvatí—to a crypt formed by nature, eighteen feet below the soil which now covers the inhumed city of ancient Behat[1]—down the course of the Ganges to the sea, encircling the eastern and western coasts, and taking refuge even in the "Kistvaens" of the extinct races of the Dakhin.[2] That the silver coins should have been preserved to the present time, in larger numbers than their more perishable and less esteemed copper equivalents, was to be anticipated, especially considering the greater wear and tear and easy reconversion of the latter into either new dynastic mintages or their proverbial absorption by all classes for the construction of domestic utensils.[3] But with all this, the relative proportions of each, which reward modern collectors,[4] would seem to indicate that of the joint currencies, the silver issues must have already constituted a predominant feature in the circulating media of the day; and this evidence is by no means unimportant, as showing that while the standard of value was essentially *copper*, the interchangeable rates of the two metals must have been conventionally recognized while these imperfect currencies were in the course of formation and reception into the commerce of the country.

The tenor of the entire text of Manu conclusively demonstrates that the primitive standard or *stipis auctoritas*[5] of the currencies of the Indians, like that of the Romans and those independent originators of their own proper civilization, the Egyptians, was based upon copper, a lower metal, which, however it may revolt the golden predilections of modern times, was clearly in so far preferable in the early conception of interchangeable metallic equivalents, that it constituted the most widely distributed and diffused representative of value, brought home to the simplest man's comprehension, and obviously in its very spread remained the least liable to sudden fluctuation from external causes, such as would more readily affect the comparatively limited available amounts of either of the higher metals. Hence, in remote ages, under an imperfect philosophy of exchange, copper may be said to have been the safest and most equable basis for the determination of all relative

[1] Journ. As. Soc. Bengal, iii. p. 44; Prinsep's Essays, i. p. 73. For range of localities, see also A. Cunningham, Bhilsa Topes, p. 354.

[2] Caldwell, Drávidian Grammar, p. 526: "It is a remarkable circumstance that no class of Hindús know anything of the race to which these Druidical remains belonged, and that neither in Sanskrit literature nor in that of the Drávidian languages is there any tradition on the subject. The Tamil people generally call the cairns by the name of *páṇḍu-kuṛis*. *Kuṛi* means a pit or grave, and *páṇḍu* denotes anything connected with the Páṇḍus, to whom all over India ancient mysterious structures are attributed." Walter Elliot, Madras Journal Lit. and Science, 1858, p. 227: "A large hoard of these coins was discovered in Sept. 1807, at the opening of one of the ancient tombs, known by the name of *páṇḍu-kúlis*, near the village of Chavadi paleiyam, in Coimbatore, thus identifying the employment of this kind of money with the aboriginal race whose places of sepulture are scattered over every part of Southern India."

[3] Tavernier, speaking of the coins of the neighbouring kingdom of Persia (in A.D. 1664), after mentioning the seigniorage of 7½ per cent. on the silver money, adds, "but upon copper money not above ½ or 1 per cent. at most. Whence it comes to pass that when a workman has need of copper, rather than lose time in going to buy it, he will melt down his *cashbekés*."—p. 51.

[4] Col. Stacey's collection contributes 373 silver coins of this class to 30 copper pieces (Journ. As. Soc. Bengal, xxvii. p. 256, 1858). The British Museum cabinets show 227 silver against 2 copper *punch* coins. Of the former 57 are round, the rest are square, oblong, or irregularly shaped.

[5] Pliny, xxxiv. c. 1.

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values; and so well did it seemingly fulfil its mission in India,[1] that as civilization advanced with no laggard pace, and foreign conquest brought repeated changes of dominant power, and whatever of superior worldly experience may have accompanied the intrusive dynasties, the copper standard continued so much of a fixed institution in the land, that we find it welcomed to the empty treasuries Tímúr left behind him,[2] elaborated and adjusted in the reformed currencies of Shír Sháh,[3] and accepted by Akbar (A.D. 1556–1605) as the universal arbiter of all fiscal and mercantile transactions, so that the State demands of his magnificent empire had to be defined in the alarmingly long sum of 6,62,97,55,246 *dáms*,[4] a copper coin of the weight of 323·56 grains, of which 40 were reckoned to the new *rupee*. With the accumulated increase of wealth, the cumbrous volume of the copper coinage made an opening for the silver *rupee*, which established itself permanently in its place, and as time went on gold *mohurs* had an exceptional and temporary acceptance; but, like the *rupees* of Akbar, they were always left to find their own level in the market, as certain inexperienced servants of the East India Company discovered, to their astonishment, to be the still ruling idea of the community at large, when they prematurely declared gold a legal tender in 1766.[5]

I defer for the moment the description of the most ancient specimens of the domino coins, in order to complete as far as possible *ab intra* their true position in the general sequence of Indian inventions. A very important test in this respect of the antiquity of these sections of metal is contributed by the subsequent efforts of the natives of Hindústán to introduce improvements in the technic manufacture of coins, while still retaining the general typical devices, which advance from the crude punch impression into full-relief dies of various degrees of pretension and execution. The first stage of progress may be detected in the continued use of the primitive punch as modified by the enlarged surface of the die, which is made to cover some two-thirds of the oblong piece, whose lower face, however, still remains blank. The next advance may be traced in the adaptation of the anvil to the first crude idea of a reverse, in a sunk-die or catch of small dimensions cut into the anvil itself; which invention may be followed in its various stages of elaboration, from the rough *intaglio*, which served to fix the planchet, up to the complete superficial reverse of later examples. A parallel series, of independent growth, essayed to effect the fixation of the metal to be impressed, by giving a cup-like form to the reverse die, which was gradually advanced from its

[1] "In Gerhwál, copper, in weight, would appear to have been once the principal medium of exchange. This circumstance no doubt arose from that metal forming the staple commodity of the country. In adherence to old usages, the Zamindárs of Gerhwál, even now (1827 A.D.), in many of their contracts, stipulate a part of the price in a given weight of copper."—G. W. Trail, Report on Kumaon, As. Res. xvi. p. 191.

[2] Pathán Kings of Dehli, p. 359.

[3] Ibid. p. 404.

[4] The payments in kind, in the province of Kashmír, were all reduced into equivalents in *dáms*, and the single exception to the copper estimate occurs in the Trans-Indus *sarkár* of Kandahár, where the taxes were collected in Persian *gold túmáns* and *dínárs* (Gladwin's Áín-i-Akbarí, ii. pp. 3, 107, 110. See also i. pp. 2. 3, 4, 35, 37, 39). I do not lose sight of the fact of the long-continued use of an intermediate mixed silver and copper currency, which filled in the divisions between and co-existed with higher and lower coinage of unalloyed metals (Num. Chron. xv. pp. 153, 163; Prinsep's Essays, Useful Tables, p. 71). *Dáms*, like the old *kársha*, were also recognized and used as *weights* (see Áín-i-Akbarí, i. p. 307).

[5] Sir James Steuart, The Principles of Money, etc., in Bengal, p. 26 (Calcutta, 1772). This episode is instructive; and as the Government and its agents have passed away from the scene, we may quote without offence the just comments of an outspoken man, who concludes his remarks with "at last the gold currency fell altogether to many per cent. below its intrinsic value, according to the saying, Dum vitant stulti vitia in contraria current."

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unadorned convexity to all the honours of a device equal in spread and finish to the leading obverse.[1] Another mechanical means—specially favoured by the aptitude of the home workmen in that direction—consisted in the casting of coins. We can only follow the general progress of this art by the merits of the devices employed, which gradually improve in treatment and finish. The multitude and variety of this class of money extant would seem to point to mintages of more or less authority extending over a considerable period, and owing their origination to independent localities. So that under either the one aspect or the other these mechanical epochs must be taken to represent a large measure of time when initiated among a people so ever unwilling to move out of old grooves, and so notoriously prone "stare super vias antiquas." All these advances, it is clear, must have been effected before the advent of the Greeks; for had the Indians waited till the Macedonians came to teach them, they would have spared themselves all these manifest efforts of invention, and humbly have essayed to copy the perfect coins of Alexander now ready to their hands, and would probably have succeeded in achieving about as curious an imitation of Greek art as the modern fabricators of Ráwal Pindí reproduce from Bactrian originals, to tempt unwary collectors of Indian antiquities.[2]

But the most practical and conclusive argument I can offer to satisfy numismatists of the interval that must have elapsed between the original date of issue of these punch coins and the intrusion of the Greeks, is the discovery of associated specimens of the local and exotic currencies, the former of which had been "much worn" in the ordinary traffic of the country, while the Greek pieces were, so to say, new from the mint.[3]

So many questions connected with the earliest form of Indian money have been incidentally adverted to in the examination of the weights upon which it was based, and from whose very elements as divisional sections of metal all Indian coinages took their origin, that but little remains

[1] The Indo-Scythians and Sassanians, though in full possession of all the more advanced methods of coining, still continued to use this shape.

[2] As I had occasion to refer to this question some years ago, I cannot do better than reproduce the conclusions then arrived at on a general review of the subject. "The not very discriminating demand by Europeans for Bactrian coins has, for long time past, stimulated the native goldsmiths and other cunning craftsmen of the Panjáb to fabricate copies of the ancient Greek originals; this is usually effected with considerable skill by a casting of silver, more or less debased, in ordinary clay moulds, produced from direct impressions of the medal to be imitated. So that the intentional forgery simply constitutes, for those who would use it as an aid to history, a very close reproduction of a genuine model. The most frequent practice is to cast in silver, and on rare occasions in gold, counterparts of the true copper coins; as the more precious metal is more suitable for the purpose, and when turned out meets with a readier sale, at prices far higher in proportion than specimens of the lower currency. This prevailing usage does not, however, debar the *fac-simile* reproduction of the more rare silver coins in that metal. Indeed, within my own limited experience, I have had occasion to examine a collection made by an Officer of H.M.S. 10th Foot at Peshâwar, in which I discovered an absolute handful of silver casts, of various degrees of merit, all taken from one exquisite original of Agathocles's Panther type of money, which had, itself, without the purchaser's suspicion of its comparative value, found its way into a re-association with its own family. But while pleading for the utility of *bonâ-fide* casts, which in some cases almost approach the accuracy of electrotypes, I must add, for the credit of Bactrian numismatics, that no collector of ordinary acuteness need fear to be deceived by modern forgeries properly so called, that is, where dies have been cut for the purpose of producing new coins. Here Oriental aptitude is altogether at fault, the Eastern eye of the present day is unable to realize equally as the hand is incapable of conveying a semblance of Greek art."—J.R.A.S. xx. 123.

In addition to this, I may refer the reader to the curious revelations on the constitution of a School of Art, established for the deception of European purchasers, at Râwal Pindí, contributed to the J.A.S. Bengal, in 1856, by Col. T. Bush. See also a paper by Gen. Cunningham, "On Counterfeit Bactrian Coins," J.A.S.B. ix. p. 393.

[3] The discovery by Mr. E. C. Bayley, in 1853, "of a number of silver coins in the Kangra district, comprising specimens of Antimachus II., Philoxenes, Lysias, Antialkidas, and Menander, together with a few punch-marked pieces, the last being *much worn*, whilst all the Greek coins were comparatively *fresh*."—Gen. Cunningham, Num. Chron. 1873, p. 209.

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to be said in regard to the introductory phase of local numismatic art, beyond an explanation of the technical details, and a casual review of the symbols impressed upon these normal measures of value. The contrast, however, between the mechanical adaptations of the East and West may properly claim a momentary notice, with the view of testing the validity of the assumption I have consistently maintained respecting the complete independence of the invention of a metallic circulating medium by the people of Hindústán.[1]

Many years ago the late Mr. Burgon[2] correctly traced, from the then comparatively limited data, the germ and initial development of the art of coining money in Western Asia, describing the process as emanating from the Eastern custom of attaching seals as the pledge of the owner's faith in any given object. This theory satisfactorily predicated the exact order of the derivative fabrication of coins, which may now, with more confidence, be deduced from the largely-increased knowledge of the artisan's craft and mechanical aptitude of the ancient inhabitants of Mesopotamia, the relics of which the researches of Layard, Loftus, and Botta have recovered in so near an approach to their primal integrity. The universal employment of clay for almost every purpose of life,—including official and private writings, with the connecting seals that secured even leather or parchment documents,—in which gods were fashioned,[3] of which houses were built and coffins[4] constructed, naturally led up to marked improvements in the processes of stamping and impressing the soft substance nature so readily hardened into durability, and to which fire secured so much of indestructibility. If moist clay was so amenable to treatment, and so suitable for the purpose of receiving the signets of the people at large, that it "turned as clay to the seal," we need scarcely be unprepared to find yielding metals speedily subjected to a similar process; for the transition from the superficially-cut stone seal to the sunk die of highly-tempered metal which produced the Darics, would demand but a single step in the development of mechanical appliances. In effect, the first mint stamps were nothing more than authoritative seals, the attestation-mark being confined to one side of the lump of silver or gold, the lower surface bearing traces only of the simple contrivance necessary to fix the crude coin. In opposition to this almost natural course of invention, India, on the other hand, though possessed of, and employing clay for obvious needs,[5] had little cause to use it as a vehicle of record or as the ordinary medium of seal attestations; if the later practice may be held to furnish any evidence of the past, her people must be supposed to have written upon birch bark,[6] or other equally-suitable natural substances so common in the

[1] Prinsep's Essays (London, 1858), vol. i. p. 217; Num. Chron. N.S. (1863) vol. iii. *note*, p. 226.

[2] Numismatic Journal, 1837, vol. i. p. 118.

[3] See the clay statue of Venus, Layard's Nineveh, p. 477. "They first made these effigies in earthenware, but afterwards, according to their different arts, they sculptured them in stone, and cast them in silver and gold."—Epiphanius, Cory, p. 55.

[4] Mr. J. E. Taylor, Journ. Roy. As. Soc., xv. p. 414; Loftus, Chaldæa, p. 204.

[5] Wilson, Rig. Veda, vol. iii. p. xiv. Arrian, lib. v. cap. xxiv., and lib. viii. cap. x.; Hiouen-Thsang, Mémoires, vol. i. p. 333, etc.

[6] Journ. As. Soc. Bengal, ii. p. 337. The primitive Persians of the north-east also wrote upon birch bark. Hamza Isfahání, under the events of A.H. 350 (A.D. 961), adverts to the discovery at Jaí (Isfahán) of the rituals of the Magi, all of which were written, in the most ancient Persian language, on birch bark. See also Q. Curtius, viii. 9, § 15; Reinaud, Mém. sur l'Inde, p. 305; Ariana Antiqua, pp. 60, 84; Prinsep's Essays, ii. p. 46. There are rolls of birch bark in the India Office Library still folded as they were found, and probably as legible as when they were first taken from the Topes in Afghánistán by Masson in 1837.

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south, from very remote ages,[1] while for their seals[2] they may perchance have employed the indigenous *lac*, if not the direct impression in ink, though they recognized the use of burnt clay for the sigillary invocations they wished to perpetuate before the altars of their gods.[3]

The practical advance in India from ever-recurring weighings towards fixed metallic currencies was probably due to the introductory adoption of lengths of uniformly-shaped bars of silver (Plate I. Figs. 1, 2, 3), which, when weight and value gradually came to require more formal certificates, were adapted designedly to the new purpose by change of form and a flattening and expansion of surface, in order to receive and retain visibly the authoritative countermarks. One part of the system was so far, by hazard, in accord with the custom of the West, that the upper face alone was impressed with the authenticating stamps, though the guiding motive was probably different, and the object sought may well have been the desirable facility of reference to the serial order of the obverse markings—each successive repetition of which constituted a testimony to the equity of past ages.

The lower face of these domino-like pieces is ordinarily indented with a single minor punch, occupying as a rule nearly the middle of the reverse. These dies, though of lesser size, follow the usual symbolical representations in vogue upon the superior face. There are scarcely sufficient indications to show if the dies in question constituted a projected portion of the anvil; but I should infer to the contrary: nor does the isolation of these symbols, in the first instance, prevent repetitions of small *reverse* punch-marks over or around their central position; in some cases, though these form the exceptions, the clear field of the reverse is ultimately devoted to the reception of the *obverse* or larger devices, which anomaly recurs, of necessity, to a greater extent with those pieces which have continued long in circulation, and more especially is this found to be the case among the residue of this description of currency in Central India and the Peninsula, where ancient customs so firmly resisted the encroachments of foreign or extra-provincial civilization.[4]

[1] Arrian, viii. 7; La Vie de Hiouen-Thsang, Paris, 1853, p. 158; Áín-i-Akbari, ii. p. 15.

[2] At a meeting of the Bombay Branch R.A.S., on 11th April, 1872, "a report was read by Dr. Bhau Daji on thirty Hindú punch coins and a gold ring, found in the village of Shinhi, near Kolapúr." Dr. Daji remarks: "The thirty coins vary from 45 to 53 grains in weight; the symbols punched (on their surfaces) clearly relate to Buddhism. The gold ring, which was found in the same pot, has the name of the owner (*Nadibhagasa* or *Nandibhagasa*) engraved on it, and the character of the alphabet enables me to pronounce it 2100 years old, *i.e.* nearly of the age of Aṣoka. The ring is octagonal on the outside surface, each side of the octagon forming an oval seal. The weight is 274 grains, diameter nine-tenths of an inch. On the surface of the oval seals the following figures are engraved: 1. The inscription; 2. A lion; 3. Two human standing figures; 4. An elephant; 5. A ficus tree with a railing round the trunk; 6. A horse; 7. Two fishes; 8. A deer."

[3] These *chaityas* or miniature clay temples of the Buddhists inclosed a stamped seal bearing the recognized formula *Ye Dharmá hetu*, etc.; both the seal and its protective casing were made durable by a repetition of the firing. See J.A.S. Bengal, iv. p. 132, xxiii. p. 474; J.R.A.S. xvi. p. 37; Ariana Antiqua, p. 51. These devotional offerings may be supposed to have been kept ready-made at the various shrines, for sale to the pilgrims, who deposited them before the statue of Buddha, leaving them as permanent *mechanical* prayers to aid the salvation of the devotee, —as in the same Faith, the water-wheel of the Tibetan village turned, in its course, the *written* prayers of the community at large.

[4] I had long been under the impression that the royal prerogative of coining money was less understood and less jealously guarded in the Southern peninsula than in the Northern provinces of Hindústán. In my late work on the Pathán Kings of Dehli (p. 344), I was able to show, from a neglected passage in Ferishtah, that in A.D. 1357—1374 goldsmiths and dealers in bullion were authorized, by prescriptive right, to fabricate money at will on their own account, without being subjected to any check or control on the part of the ruling power. This supposition is further confirmed by recently prevailing custom. "There are mints at almost all the principal towns in Central India. . . . The right of coining is vested in no particular body or individuals; any banker or merchant sufficiently conversant in the business has merely to make application to Government, presenting at the same time a trifling acknowledgment, engaging to produce coin of the regulated standard, and pay the proper fees on its being assayed and permitted to pass current."—Sir J. Malcolm, Central India, 1832, ii. p. 80.

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As far as the typical designs in themselves, when compared with later Indian symbolical adaptations, are concerned, they would seem to refer to no particular religious or secular division, but, embodying primitive ideas, with but little advanced artistic power of representation, to have been produced or adopted, from time to time, as regal or possibly metropolitan authorities demanded distinctive devices. It would be useless, at this stage of the inquiry, to attempt to decide whether these discriminating re-attestations appertain primarily to succeeding dynasties, progressive generations of men, or whether they were merely the equitable revisions of contemporary jurisdictions. Though more probably, as a general rule, the simple fixed weights of metal circulated from one end of the country to the other, in virtue of previous marks, only arrested in their course when seeming wear or dubious colour called for fresh warrantry: or incidentally, when new conquerors came on the scene and gratuitously added their hereditary symbols. The devices, in the open sense, are all domestic or emblematic within the mundane range of simple people—the highest flight heavenwards is the figure of the sun, but its orb is associated with no other symptom of planetary influences, and no single purely Vedic conception. So also, amid the numerous symbols or esoteric monograms that have been claimed as specially Buddhist,[1] there is not one that is absolutely and conclusively an origination of, or emanation from, that creed. The *Chaitya* or tumulus other Scythians practically sanctified in advance of them; the *Bodhi-Tree* was no more essentially Buddhist than the Assyrian Sacred Tree,[2] the Hebrew Grove,[3] or the popularly venerated trees of India at large.[4] That *eminently* Buddhist symbol, the *Swastika* (Nos. 2, 9, of line 17) is now found to have had a wide acceptance in Europe, as well as in Asia, and so little reverence had it attained in India at this early period, that Pánini describes it as "a mark for cattle."[5]

Equally on the other part Vedic advocates will now scarcely claim the figure of the objectionable Dog,[6] or seek to appropriate to Aryan Brahmanism ploughs, harrows or serpents. The first of these, the dog, formed a very favourite and wide-spread device among the early punch-dies, but at this time he seems to have been merely "the friend of man," though we may recognize the fact that as he was honoured as a god in Egypt and elsewhere, held a place in the Zodiac, and was

[1] Sykes, J.R.A.S. v. 451; Cunningham, Bhilsa Topes, 351, plates xxxi. xxxii. B. H. Hodgson, J.R.A.S. xviii. 393.

[2] Gosse's Assyria, 94; Rawlinson's Ancient Monarchies, ii. 235.

[3] Smith's Dictionary of the Bible, article "Grove,"—doubts are raised regarding the correctness of the translation of the word *Ashérah* as a grove. See also note in Gesenius, *sub voce Ashérah*. Pliny says, "Trees formed the first temples of the gods," xii. 2. See also Inscription of Nabonidus, "Lord of the temple of the great Asoca tree." Fox Talbot adds the remark: "This reminds one of the holy *nu* tree (or sycamore) of Egypt."—Journ. R. A. S. xix. p. 195.

[4] "Deos putant, quicquid colere coeperunt, arbores maxime, quas violare capital est."—Q. Curtius, viii. ix. 34. Wilson, Megha Dúta, ver. 157—

"Then shall the ancient Tree, whose branches wear
The marks of Village reverence and care."

Ward's Hindus, iii. 204. So also *Tulasi*,—*Ocymum sanctum*, or Sacred Basil. Ward gives a list of no less than seven Sacred Trees in addition to the *Tulasi*. Dr. W. W. Hunter, "Rural Bengal," pp. 131, 183, says: "Adjoining the Santal village is a grove of their national tree (the Sál), which they believe to be the favourite resort of all the family gods of the little community."

[5] "That Pánini, as Patanjali tells us, and Kátyáyana gives us to understand, used letters in his adhikára rules for the notation of numeral values, does not follow, we must admit, from his own words in the quoted Sútra (i. 3, 11); but there is a rule of his (vi. 3, 115), in which he informs us that the owners of cattle were, at his time, in the habit of marking their beasts on the ears, in order to make them recognizable. Such signs, he says, were, for instance, a swastika, a ladle, a pearl, etc.; yet he mentions besides, *eight* and *five*."—Goldstücker's Pánini, p. 59. It is stated in the Mahábhárata that "every three years it was the custom for the Kauravas to go out into the pastures and mark all the calves, and to renew the marks on the cows."—Wheeler, Mahábh. p. 194. So also Arrian, Indica, cap. v.: "The club of Hercules marked the oxen of the Sibæ." A symbol which was perpetuated on the Greek coins of Menander.—Prinsep's Essays, ii. 195; Ariana Antiqua, iv. 10.

[6] Manu, iii. 92, iv. 208, x. 51, 91, 106, *etc.* Max Müller, Science of Language, ii. p. 481.

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embodied in statues and bas-reliefs on the Euphrates, he might well have received consecration in India, especially after Yudhishṭhira had claimed and was permitted to take his canine companion to *Indra's* heaven,[1] and when modern Brahmans are found to assist at the rites of Bhaironáth's temple at Benares, where his "dog, too, is holy."[2] The playful puppy on the coins, however, does not seem to have attained divine honours, though his more solid successor or near type of the Indian Dog presented to Alexander, met with on subsequent mintages,[3] seems to guard one of the mystic symbols of the kind figured at the commencement of line 16 of the accompanying Plate. In brief, these primitive punch-dies appear to have been the produce of purely home fancies and local thought, until we reach incomprehensible devices, composed of lines, angles, and circles, which clearly depart from Nature's forms; and while we put these aside as exceptional composite designs, we may accept unhesitatingly as of foreign origin the panther of Bacchus with his vine (line 6), engraved in a style of latent Greek art, which overlays the mixed impressions of earlier date and provincial imagery, and appears only towards the end of the career of the punch-marked coins, in their north-western spread, before they were finally absorbed in that quarter by the nearly full-surface die-struck money with devices of an elephant, the symbol of Indian conquest, and the avowed Dionysiac panther;[4] which class in turn merge naturally into the similar though advanced art fabrics of the mints of Agathocles and Pantaleon, of square or oblong form,[5] a shape the Greeks had not previously made use of, but which, when once adopted, they retained without scruple, whatever their early prejudices might have been—possibly out of respect for local associations, a motive which weighed sufficiently with their successors and other Bactrian Hellenes to induce them to perpetuate the square indifferently with the circular coins.[6] The exceptional, or in this

[1] Mahábhárata, Wilson's Works, iii. p. 287:—

". . . admitted to that equal sky,
His faithful dog shall bear him company."—Pope.

Muir, Sanskrit Texts; Talboys Wheeler, i. p. 454.

[2] Sherring, "The Sacred City of the Hindus," p. 63.

[3] Prinsep's Essays, pl. xx. pp. 34, 36. J.A.S.B., iv. pl. 34, figs. 20, 21; pl. 35, figs. 34–36.

[4] These coins are still mere compromises, being formed from an obverse punch, bearing the device of a Panther with a free *Swastika* and the *Chaitya*, with a full surface reverse of the Elephant and the *Chaitya* repeated. Ariana Antiqua, pl. xv. figs. 26, 27; Prinsep's Essays, i. pl. xx. figs. 50, 51, page 220; Cunningham's pl. i. etc.

While upon this subject, I may notice the discovery of the name of Agathocles in Bactrian characters on a coin of somewhat similar fabric, but the oblong square is rounded off on one corner so as to form almost an irregular triangle. His name, it will be remembered, has hitherto only been found in the Indian-Páli transcript of the Greek (Num. Chron. N.S. vol. iv. p. 196). The piece in question has, on the obverse, a *Chaitya*, with a seven-pointed star, and the name *Akathukrayasa*. The reverse bears the conventional sacred tree, with the title *Maharaja* strangely distorted into *Hi,rajasa,me* or *He,ragasa,me*. Gen. Cunningham interprets this legend as *Hiduja same*, "lord of the Indians"?—Num. Chron. viii. (1868), p. 282.

[5] Ariana Antiqua, pl. vi. figs. 7, 8, 9, 11; Prinsep's Essays, pl. xxviii. 8, 9; vol. ii. pp. 179, 180; Journ. des Sav. 1835, pl. i. fig. i.

[6] To show how essentially the square form of piece constituted the traditional currency of the land, I may quote the account of the bas-relief of the purchase of Prince Jeta's field at the newly discovered Tope at Barahat, the date of which may safely be placed in the 2nd or 3rd century B.C.

"But by far the most interesting of all Mr. Beglar's discoveries is a bas-relief representing the famous *Jetavana* monastery at Srávasti. The scene is labelled *Jetavana Anádhapediko dati koti santhatena ketá*, which I take to mean that 'Anáthapedika buys (*ketá*) the Jetavana for certain *kotis* of money.' To the left there is a building labelled *Kosambikuti*, a name which has already appeared in my Srávasti inscription. A second building near the top is labelled *Gadhakuti* or *Gandhakuti*. In the foreground there is a cart which has just been unladen, with the pole and yoke tilted upwards, and the bullocks at one side. The story of the purchase of Prince Jeta's garden by Anáthapindika for eighteen *kotis* of *masurans* is told in Hardy's Manual of Buddhism. According to the legend, Prince Jeta, not wishing to sell the garden, said that he would not part with it for a less sum than would pave the whole area when the pieces of money (*masurans*) were laid out touching each other. This offer was at once accepted by Anáthapindika, and accordingly the courtyard is represented covered with ornamented squares, which touch each other like the squares of a chess board, but do not break bond as a regular pavement of stones or tiles would do. For this reason I take the squares to represent the square pieces of old Indian money. Beside the cart there are two figures with pieces in their hands. These I suppose to be Anáthapindika

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case indigenous form, found favour in later generations with the Muhammadan conquerors, who sanctioned unreservedly square pieces in common with the circular forms, up to the time of Sháh Jahán (A.D. 1628–58). But though these unshapely bits of metal ran on in free circulation up to the advent of the Greeks, this by no means implies that there were not other and more perfect currencies matured in India. The use of the time-honoured punch survived in the Peninsula till very lately, but no one would infer from this coincidence that there were not more advanced methods of coining known in the land. In fact, like other nations of the East, the Hindús have uniformly evinced more regard for intrinsic value than criticism of the shape in which money presented itself.

Many of these ancient symbols, more especially the four-fold Sun (line 17, Plate I.) are found established in permanence on the fully-struck coinage of Ujain,[1] of a date not far removed from the reign of Aṣoka, who once ruled as sub-king of that city; the probable period of issue is assumed from the forms of the Indian-Páli letters embodying the name of Ujenini, the local rendering of the classical Sanskrit *Ujjayini*. Associated in the same group as regards general devices, and identified with the apparently cognate mintages of similar time and locality, there appear other symbolical figures, which no predilection or prejudice can claim as exclusively Buddhist; indeed, whatever antagonism and eventual hostility may ultimately have arisen between the leading creeds of India, it is clear that at this period, and for long after, the indigenous populations lived harmoniously together;[2] like all things Indian, old notions and pre-existing customs retained too strong a hold upon the masses to be easily revolutionized; and if at times a proselytizing Buddhist or an able and ambitious Brahman came to the front,[3] and achieved even more than provincial

himself and a friend counting out the money. In the middle of the court are two other figures, also with square pieces in their hands. These I suppose to be the purchaser's servants, who are laying down the coins touching each other. To the left are several persons of rank looking on, whom I take to be Prince Jeta and his friends. The whole scene is very curious; and when we remember that the bas-relief is as old as the time of Aṣoka, it does not seem too rash to conclude that we have before us a rude representation of the buildings of the famous Jetavana which were erected by Anáthapindika during the lifetime of Buddha."—Gen. Cunningham, Report of As. Soc. Bengal.

At the Aswamedha Sacrifice of Dhritaráshtra a space of "ground was covered with 400 golden bricks; and the sage Vyása . . and other Ṛishis seated themselves on the golden pavement."—Wheeler, Mahábhárata, p. 429.

[1] Journ. As. Soc. Bengal, vol. vii. pl. lxi. p. 1054.

[2] Stevenson, Journ. Bombay Br. R.A. Soc. "On the whole, we find that Brahmans and Buddhists, in these early days of our era, lived in peace with one another, and were both favoured and protected by the reigning sovereigns; and that among the former the Sanskrit language was used in writing and the Prákrit by the latter; the two languages probably holding the same place to one another that the Sanskrit and the vernaculars do at present." So also the whole narrative of Hiouen-Thsang's travels in India (A.D. 629–645) testifies to a like amiability; and Mr. Hall has discovered that King Harsha of Kanauj accepted dedications of the works of Buddhist and Brahman with equal impartiality. — Sherring, "The Sacred City of the Hindus," Preface, xxxi. Hiouen-Thsang, *passim*.

[3] Since the above sentence was published, some years ago, an interesting question has been raised as to the missionary influence of Brahmanism. Prof. Max Müller, in his lecture in Westminster Abbey, classified the various religions of the earth as missionary and non-missionary, including in the former category "Buddhism, Muhammadanism, and Christianity," and under the latter "Judaism, Brahmanism, and Zoroastrianism." Mr. A. C. Lyall, of the Bengal Civil Service, in commenting upon these positions (*Fortnightly Review*, July 1, 1874), remarks: "Brahmanism is enormously the most important of the religions classified in the lecture as non-missionary; and it is said to be dead. What I have to say is, that to an eye-witness this religion is not dead, nor dying, nor dangerously ill; and, moreover, that so far from it being a non-missionary religion in the sense of a religion that makes no proselytes, one may safely aver that more persons in India become every year Brahmanists than all the converts to all the other religions in India put together. . . . . If by Brahmanism we understand that religion of the Hindús which refers for its orthodoxy to Brahmanic scriptures and tradition, ... then this religion still proselytizes in two very effective modes. The first is the gradual Brahmanizing of the aboriginal, non-Aryan, or casteless tribes. . . . . The second is by the working of the devotees and spiritual leaders who found new sects and set up new lights in divine matters. . . . . Its working is further defined as a social

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renown, the Indian community at large was but little affected by the momentary influence; and it is only towards the eighth or ninth century A.D. that, without knowing the causes which led to the result or the means by which it was accomplished, we find Brahmanism dominant and active in persecution.

I have now to advert to the symbols embodied in the Plate. I shall notice only those of more moment in the text of this necessarily discursive introduction to the coins of India at large. The engraving will perhaps be sufficiently explained under the subjoined synopsis.

A.	Heavenly bodies	1	The Sun.
B.	Man, his feet, etc.	2	
	Animals	3	Elephants.
	,,	4	Dogs, etc.
	,,	5	Cows, deer, rhinoceri, etc.
	,,	6	Panthers, etc.
	Fish	7	
	Reptiles	8	
C.	Home life	9	Ploughs (?).
	,,	9*	Cups, vases.
	,,	10	Harrows.
	,,	11	Wheels.
	,,	12	Bows and arrows.
D.	Imaginary devices	13	Chaityas.
	,, ,,	14	Trees of various kinds.
	,, ,,	15	*Maṇḍalas*, or mystic circles.
	,, ,,	16	Magic formulæ.
E.	Reverse dies	17	

system, and a very elastic one; while the people in India, as a body, still need a religion which, like Brahmanism, provides them with social rules and with laws of custom as well as of conduct."

Max Müller, in reply, answers with full frankness, "On all truly essential points I feel certain that I am completely at one with Mr. Lyall;" and he goes on to remark that, "in explaining the meaning of the word 'proselyte,' or προσήλυτος, I had shown that literally it means those who come to us, not those to whom we go, so that even a religion so exclusive as Judaism might admit proselytes,—might possibly, if we insisted on the etymological meaning of the word, be called proselytizing, without having any right to the name of a missionary religion. However, Mr. Lyall does not stand alone, as others have claimed for Judaism and Zoroastrianism the same missionary character which he claims in the name of Brahminism." Max Müller further cites a passage from his own work on Sanskrit Literature, where he had already recognized the admission of the Rathakaras, or carpenters, to Vedic sacrifices.

Mr. A. C. Burnell, of the Madras C.S., had, long before this question was raised, given us the uncontroversial result of his own experience in this matter, by remarking that "the Brahmanization of the wild tribes in Central and South India is going on to this day, and is yet far from complete."—Indian Antiquary, October, 1872, p. 311.

Mr. Wheeler also comments independently on this subject in the following terms:—"The missionary operations of the Brahmans are indeed worthy of special study. They have been carried on from time immemorial, and the process is still going on amongst hill tribes and other remote populations. A Brahman makes his appearance in a so-called aboriginal village, and establishes his influence by an affectation of superior sanctity, aided by the fame of his spells, incantations, mystic rites, and astrological predictions. He declares the village idol to be a form of one or other of the great gods or goddesses of the Brahmanical pantheon; and he professes to teach the true forms of worship. He divides the villagers into castes, and introduces caste laws. In this manner the populations of India have been brought under the spiritual domination of the Brahmans, and the caste system has been introduced into secluded regions, in which it was previously unknown."—History of India, vol. iii. p. 401.

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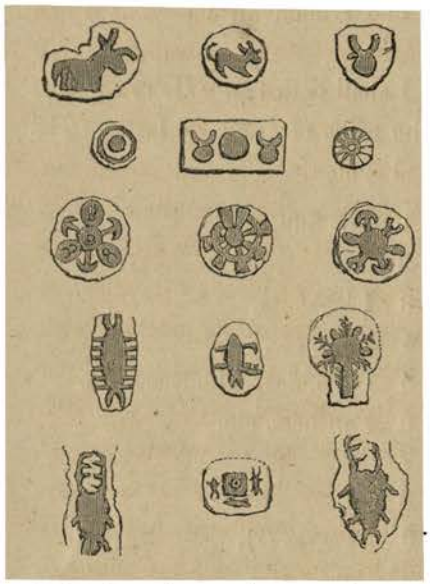
In addition to the illustrations figured in the accompanying Plate, I insert a woodcut of certain independent tracings, copied from the punch-coins in the Museum of the Asiatic Society of Bengal, which was prepared for my edition of Prinsep's Essays in 1858.



Under Class A in the engraving appears the single representation of the Sun: no other planet or denizen of an Eastern sky is reflected in early Indian mint-symbolization. In examining the general bearing of these designs, the first point to determine is,—does the Sun here, as the earliest or deepest-sunk emblem, stand for an object of worship? *Savitṛi* or *Súrya* undoubtedly held a high position in the primitive Vedic theogony,[1] and it is a coincidence singularly in accord with its typical isolation on these pieces that the Indo-Aryans, unlike their Persian brethren, dissociated the *Sun* from all other planetary bodies. But, with all this, there is an under-current of evidence that the Scythians had already introduced the leading idea of Sun-worship into India prior to any Aryan immigration; for even the Vedic devotion to the great luminary is mixed up with the obviously Scythic *aswamedha*, or sacrifice of the horse.[2] Then, again, arises the question as to whether this Sun-type, which appears in the lowest strata among all the mint dies, and is so frequently repeated in slightly modified outlines, does not refer to the more directly Indian traditionary family of the Súrya Vanṣas,[3] who eventually are made to come into such poetic hostility with the Chandra Vanṣas, or Lunar branch. Neither one race nor the other is recognized or alluded to in the text of the Vedas; but abundance of reasons may be given for this abstinence, without implying a necessary non-existence of Children of the Sun before the date of the collection of those ancient hymns. However, looking to the decidedly secular nature of the large majority of the figures in subsequent use upon this class of money, I am content for the present to adopt the popular rather than the devotional solution; or, if the latter alternative find favour, it must be conceded that the Buddhists incorporated the symbolism of the early worship of the Sun into their own system, which in itself may fortuitously have carried them through many sacerdotal difficulties, even as, if we are to credit resemblances, the Aryans successfully appropriated the Buddhist adaptation of an older form in the outrageous idol of Jagannáth,[4] or secured as a Brahmanic institution the ancient Temple of the Sun at Multán.[5] Whatever may have been the course in other lands, it is clear that, in India, it was primarily needful, for the success of any new creed, to humour the prejudices and consult the eye-training of the multitude, as identified and associated with past superstitious observances.

[1] Wilson, Rig Veda Sanhitá, vol. i. pp. xxvii. xxxii.; vol. ii. p. vii.; vol. iii. p. x.

[2] Wilson, Rig Veda Sanhitá, vol. ii. p. xiv.

[3] Prinsep's Essays, vol. ii. U. T. pp. 232, 236, and p. 45*n. ante.*

[4] Stevenson, J.R.A.S. vii. p. 7; Cunningham, Bhilsa Topes, p. 358, pl. xxxii. figs. 21, 23; Hunter's Orissa, i. p. 84: "In the uncertain dawn of Indian tradition, the highly spiritual doctrines of Buddha obtained shelter [at Jagannáth]; and the golden tooth of the founder remained for centuries at Purí, then the Jerusalem of the Buddhists, as it has for centuries been that of the Hindús." See also "Rural Bengal," p. 184.—Ain-i-Akbari, ii. 18.

[5] Reinaud, Mémoire sur l'Inde" (Paris, 1849), p. 97.

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Among other figures of very frequent occurrence and very varying outlines, a leading place must be given in this series to the so-called *Chaityas* or *Stúpas*.[1] There is little doubt but that the crude tumulus originally suggested the device, for even to the last, amid all the changes its pictorial delineation was subjected to, there remains the clear ideal trace of the central crypt, for the inhumation of ashes, or the deposit of sacred objects to which it was devoted in later times.

Much emphasis has been laid upon the peculiarly Buddhistic character of this symbol. It is quite true that its form ultimately entered largely into the exoteric elements of that creed, but it is doubtful if Buddhism, as pretendedly expounded by *Sákya Sinha*, was even thought of when these fanciful tumuli were first impressed upon the public money; and to show how little of an exclusive title the Buddhists had to the *Chaitya* as an object of religious import,[2] it may be sufficient to cite the fact that, so far as India is concerned, its figured outline appears in conjunction with unquestionable planetary devices on the coins of the Sáh kings of Suráshtra,[3] who clearly were not followers of Aṣoka's *Dharma*. But, as the Buddhist religion avowedly developed itself in the land, and was of no foreign importation, nothing would be more reasonable than that its votaries should retain and incorporate into their own ritualism many of the devices that had already acquired a *quasi*-reverence among the vulgar, even as the Sun re-asserted its pristine prominence so certainly and unobtrusively, that its traditional worshippers, at the last, scarcely sought to know through what sectional division of composite creeds their votive offerings were consigned to the divinity whose "cultus" patriarchal sages, here as elsewhere, had intuitively inaugurated.

Many of the singular linear combinations classed under D as *maṇḍalas* (No. 15), which it would be difficult otherwise to interpret, may reasonably be referred to the independent conceptions of primitive magic; as, whatever may have been the religion of the various grades of men in its higher sense, it is manifest that even the leading and more intellectual rulers of the people retained throughout a vague faith in the efficacy of charms. The sacred *Mantras* themselves are often mere incantations, or combinations pretending "to compel the gods." Almost all the tales in Persian or Arabic authors bearing upon Alexander's intercourse with the unconquered nations of India turn upon their proficiency in the black art;[4]—traditions sufficiently warranted by the probability that he, a Greek, would readily seek revelations of this kind, even as he sought the knowledge of the art of the Chaldees.

So also with their own home legends—Buddha himself is made to study *Yoga*[5]—one-half of the revolution wrought by Chandra Gupta's advisers is placed to the credit of magic, and the

[1] The term चैत्य *Chaitya* was originally applied to any large tree held in peculiar sanctity, though the name was ultimately appropriated to the Buddhist *Stúpa*. Cf. *τύφω, τύμβος, θάπτω,* तप *tap*, Zend *tap, tafnu, dakhma*, تفتن "to burn" (دفن), *tepo, tepidus*, Italian *tufo*, hence the place of deposit of ashes, and eventually the *tumulus*. Cf. also स्तूप *stúp* "to heap," *γήλοφος, σῆμα χέειν*, etc., and the Páli *tupha* of Aṣoka, the *thupa* of the Books.—Wilson, Gloss.; Burnouf, i. 348; Stevenson, J.R.A.S. v. 192; Sykes, *ibid.* vi. 452; Pictet, 506.

[2] Prinsep, Journ. As. Soc. Bengal, iv. p. 687.

[3] Journ. R. A. S. xii. p. 1; Prinsep's Essays, i. p. 425, ii. pl. xxxvii. p. 84; Journ. As. Soc. Bengal, vi. p. 377, vii. p. 347. Prinsep's reading of his coin (No. 11, p. 354, Journ. As. Soc. Bengal) as *Jinaḍámá*, "votary of Buddha," was an error; the name is *Jiwa Dámá*.

[4] Sháh Námah, Macan, iii. p. 1299; Mujmal-al-Tawáríkh, Journal Asiatique; see also Ibn Khordádbah, Journal Asiatique, 1865, p. 294; Mas'audi, ii. 452.

[5] Lalita-Vistara, x., quoted by Max Müller, "Science of Language," p. 519. See also H. H. Wilson's Works (Dr. Rost's edit.), vol. iii. p. 354.

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Nandas, whom he superseded, appear to have been special proficients in sorcery.[1] If this was the state of things in India in those semi-historic times, may not we adopt the parallel of other nations, and assume that, as so many crude hierarchies grew out of archaic divinings, these Indian symbols,[2] in their degree, may well have been emanations from a similar source, and have run an equal race into the higher dignity of representing things held more sacred? As such, their later reception into the series of the typical adjuncts of a faith formed *in situ*, need excite no surprise.

As most of these symbols will probably recur on the subsequent mintages of the country, where their connexion and bearing may be more closely traced, I content myself with this summary notice of the more prominent objects of the series, leaving to the Editors of succeeding sections of this work the task of more fully describing the typical devices and peculiarities of each in due order.

All critical essays on Numismatics are bound to touch upon the question of the *values*, either absolute or relative, of the currencies of which they treat. In the present instance the systematic scale of proportions—if any such stage had been reached—must rather be guessed at than authoritatively defined. We can, however, closely determine the value of the silver "bits," as modern analyses have shown that the art of refining was at this period, like the coinage itself, in its infancy. The highest degree of purity attained barely reaches 80 per cent. of silver.[3] The relative and exchangeable values of the three metals, of which we have extant specimens of only two, must equally remain much a matter of speculation; but I am under the impression that there was, even thus early, a tendency to theorize in the quaternary even numbers, which clearly prevailed for ages during the later life of the nation. The normal rate of exchange, judging by the test of more recent evidence, appears to have ruled conventionally, but by no immutable law, at gold to silver 1 : 8, silver to copper 1 : 64.[4]

[1] H. H. Wilson's Works (Dr. Rost's edit.), iii. 174, 175, 178. See also 372, 373, and i. 206, 212; ii. 377; iv. 131; v. 109, 143.

[2] Tantric "*diagrams*" were supposed to be of much efficacy (see Wilson's Works, ii. 78; see also i. 249). Burnouf speaks of "une sorte de diagramme mystique également familier aux Brahmanes et aux Buddhistes" (Lotus de la Bonne Loi, p. 625). We see similar curious linear combinations in the charms suspended from the necklaces at Sanchi (Fergusson, pl. iii. fig. 4). Many of these mystic symbols were affected by the Zoroastrian Persians (J.R.A.S. xiii. 425; Lajard, Culte de Mithra, etc.), and passed on into the Gnostic emblems of the West. See also Cunningham's Bhilsa Topes, pls. xxxi. xxxii.; Rev. S. Beal, J.R.A.S. N.S. vol. v. p. 164.

[3] General Cunningham has had an elaborate series of analyses made of these coins:—

a. by Native goldsmiths, per-centage of silver.	.		79·76
b. by Messrs. Johnson	,,	,,	78·31
c. by M. Claudet	,,	,,	76·77

A later set of silver pieces from Mathurá rose to 81·9 per cent.—Numismatic Chronicle, pp. 200, 202.

[4] This question has been fully gone into in my Pathán Kings of Dehli, pp. 231, 364, 367, 409. See also Colebrooke, Asiatic Researches, vol. v. p. 92.

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CHAPTER IV.

WEIGHTS OF ANCIENT COINS PROVED BY LATER ISSUES.

THE concluding chapter of this series may be brief, its object being simply to prove that my estimate of the theoretical weight of the ancient *rati* at 1·75 grains, if not absolutely final, is a very close approximation to the truth.

The assumed standard may now be tried by the test of the consistent retention of its normal *unit* in the consecutive coinages of the country for a period which can scarcely fall short of some five-and-twenty centuries.

Two different elements have hitherto obstructed any satisfactory determination of the exact weight of this primal basis: the one, the irregularity of the *gunjá* or *rati* seeds themselves, which necessarily vary under the influences of climate, soil, and other incidental circumstances of growth; the other, the importance of which has been completely overlooked, that modern inquirers have usually sought to solve the problem of this national weight by an appeal to modern coins, without having regard to the increase upon the old 175 grain *tankah* introduced in Shír Sháh's new *rupee*, which led to a natural ignoring of the traditional contents of the standard silver *ṣatamána*, or 100 *rati* piece of Post-Vedic authority, on the part of his successors, Native or European.

Those practical experimentists who have tested the weight of the *rati* by averages of the home-grown seeds themselves have arrived at the following varying results:—

1.	Sir W. Jones ($1\frac{5}{16}$th)[1]	1·3125	Average.
2.	Major Jervis[2]	1·9124	
3.	Major Sykes[3]	1·9140	
4.	Sir Walter Elliot[4]	1·8127	
5.	Mírat trials[5]	1·93487	
6.	Mr. Laidlay[6]	1·8250	
7.	General Cunningham[7]	1·8230	
		12·53447 ÷ 7 = 1·79063	

[1] Gen. Cunningham has proposed a summary rectification of this $1\frac{5}{16}$ into $1\frac{5}{6}$, which would give a decimal return of 1·8333 grains, and would accord more nearly with the other independent results. The matter is not of very high moment, but if error there be in the first fraction, it is curious that it should not have struck Colebrooke, who, writing in 1798, perpetuated the former estimate, which his editor retains in the new issue of his works. London, 1873, p. 529. The original passage, giving Sir Wm. Jones's own interpretation, emphasized by the mention of "diamond scales," is printed in full words and italicized, as "a grain and *five-sixteenths*," in the Calcutta 4to. edition of the Asiatic Researches of 1790. Had the sum been expressed in figures, there might have been more probability of a mistake, such as suggested by Gen. Cunningham; and I notice in so far that, in the reprint of Colebrooke's Essay, reproduced in Sir Wm. Jones's Works, London, 1801, viii. p. 870, the fraction of $\frac{5}{16}$ is erroneously converted into $\frac{3}{16}$.

[2] Jervis, Weights and Measures of India, Bombay, 1836, pp. 52, 59.

[3] *Ibid.* p. 59.

[4] Madras Journal of Literature and Science.

[5] Mírat *Universal Magazine*, no. xiii. quoted in Sir H. Elliot's Glossary of Indian Terms, ii. p. 325.

[6] Gen. Cunningham, Numismatic Chronicle (1873), p. 196.

[7] *Ibid.* Gen. Cuningham further cites a return obtained by Mr. Shakespeare, as stated to be given in his Hindústáni Dictionary, *sub voce rati*, amounting to 1·7966. The new edition of the work in question merely cites Sir H. Elliot's figures as 1·933, a misprint from No. 5 above given.

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I have placed in the full prominence of text type all the verificatory trials I could trace that have hitherto been undertaken to establish the fundamental value of the *rati*, by the criteria of the weight of the modern counterparts of the ancient seed. The average of these independent returns so nearly approaches my own estimate that I need scarcely go further into the question, except to draw attention to the limited range and northerly boundaries of the countries to which the primitive "Laws of Manu" apply,[1] and the enhanced weight of the produce of identical plants with a habitat south of the Vindhya range exhibited in the Table of *phaseoli* at page 11.

Singular to say, Major Jervis, one of our most experienced investigators into the weights and measures of the Peninsula, was sorely puzzled at the extra weight of the *rati* developed in his own and Major Sykes's adjustments of the local seeds; hence his *húns* (gold coins), tried by this test, came to "exceed the weight of every such coin throughout India," and his *bhar*, which according to his calculation should have been 500lbs. avoirdupois, mounted up to a very inconvenient measure wherewith to have to *sell*.[2] This explanation receives additional support when we advert to the descending weight below the *rati*, which in these southern parts is always expressed in grains of rice instead of grains of barley, a gradation that of itself would indicate different accessories of clime and soil. It is however necessary to add, in derogation of this inference of the higher weight of the southern seeds, that confined experiments made at Mírat with 267 *ratis*, gave a return of 1·93487 grains; but, on the other hand, as the condition and surroundings of these seeds is not fully ascertained, and may otherwise have been exceptional, we may set-off the item that old, but very clean and full-sized seeds, now in the Museum at Kew, fall to as low an average as 1·5375 grains.[3] It is a significant fact that though I can afford to disregard these minor divergences, in virtue of the more exact data supplied by my metallic tests, I am able to close this branch of the inquiry by a confession on the part of another of our esteemed administrators of the past generation, that the old seed test continued to be the most effective and trustworthy means of proof for all practical purposes up to very recent times in the outlying districts of British India.[4]

If the above inevitable divergences from the given theoretical system followed the changed domicile of those who confessed to a common basis of reckoning, we may well excuse our own countrymen, who, in the commercial sense, worked upwards from the sea to the old dominion of Kurukshetra, on the Jumna, and who had to learn their early lessons in Oriental currencies in a debased Muhammadanized school in Bengal.

Colebrooke's first essay towards the application of the *sikka* weight test to his "double *rati*" pretends to so little exactness that we need scarcely criticize its terms. He says, "But factitious *ratis* in common use [in 1798] should be double the *gunjá* seed; however they weigh less than

[1] See the geographical distribution, *antè*, p. 10.

[2] Weights and Measures of India, p. 59, etc.

[3] 40 seeds = 61·5 gr. which ÷ 40 = 1·5375.

[4] "In Central India every article is sold by weight. . . . . Two species of weights are used in Central India, that of the silversmiths and jewellers, and the large or bazaar weight: the former is founded on the grain of rice, and the *rati* or seed of the wild *Jamaica liquorice*. It is very simple, and is deemed immutable; while that of the bazaar, having as a standard the current rupee of the country, varies" (considerably).—Major-General Sir John Malcolm, Memoir of Central India, 1832, vol. ii. page 87.

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$2\frac{1}{4}$ grains. For the *sikka* weight contains $179\frac{2}{3}$ grains nearly; the *másha* $17\frac{3}{8}$ nearly; the *rati* $2_{\frac{3}{13}}$ nearly."

Prinsep's investigations were far more searching and elaborate. He rightly estimated the old *rupees* at 175 grains,[1] but he was distracted by vague notions of reconciling *sikka rupees*, Calcutta weights, and Indian measures generally, into one homogeneous whole with European standards.[2] He, too, like less critical inquirers, clearly expected to discover the true *rati* of Manu amid the altered data of the Muhammadan system. But whereas the *rati* of the ancients constituted the essential *unit*, and secured the basis upon which the 100 *rati* (175 grain) *tankah* was formed, the factitious *rati* of the Muslims was merely an aliquot part—$\frac{1}{96}$ of the comparatively recent *tola*, and $\frac{1}{9\frac{1}{2}}$ of the newly devised *rupee;* and no concurrent effort was made to secure its coincidence with the earlier sectional divisions established from time immemorial.[3]

The amalgamated scheme of the weights of India in 1528 A.D., prior to Shír Sháh's intervention, has been preserved for us in the text of the Emperor Bábar's Memoirs, and may be simplified and tabulated as follows :—

TABLE OF INDIAN WEIGHTS (from Bábar's Memoirs, p. 332).

8	*ratis*	=	1	*másha.*						
32	,,	=	4	,,	=	1	*tang.*			
40	,,	=	5	,,	=	1	*miskál.*			
96	,,	=	12	,,	=	1	*tola.*			
1344	,,	=	168	,,	=	14	,,	=	1	*sir.*
53760	,,	=	6720	,,	=	560	,,	=	40	,, = 1 *mann.*
									12	,, = 1 *máni.*
									100	,, = 1 *minásah.*

"And it is fixed that everywhere 40 *sirs* make one *mann*. . . . They reckon jewels and precious stones by the *tang*." See also note, p. 16, Aín-i-Akbari, Blochmann's translation, Calcutta, 1868, and text, pp. 31, 36.

To this table may be added the still more composite scale of weights adjusted in the works of later Muhammadan writers.

[1] Prinsep's Essays, Useful Tables, p. 22.

[2] Prinsep pays a parting tribute to the indigenous civilization of India, in regretting the inconveniences resulting from our English interference with the traditions of the people, in respect to the double function of the current coin. The Indian system, when the English first became acquainted with it, combined all the advantages of a direct connexion between the coin and the unit of weight. They were in fact the same thing until the Regulation taking force from the 1st January, 1819, changed the standard purity of the coin by an addition of copper without altering its value in pure contents of silver. This measure increased the weight of the *rupee* by an awkward fraction of $\frac{12250}{176666}$ parts, and rendered all subsequent conversions of weight into money a matter of intricate calculation; for the old *rupee* was still retained as the unit of weight under the title of *sicca weight*, in contradistinction to the newly introduced *sicca rupee:* and it was allowed to regulate the bázár *mann*, which was 40 *sirs* of 80 *siccas* (or 179,666) each.—J.A.S. Bengal, i. p. 445.

[3] We have here an apt example of the conflict arising from official intervention amid the traditional customs of the country in the contact of unassimilated totals. General Cunningham, without, however, fathoming the cause of the anomaly, observes: "The same confusion of the numbers (as in the *angulas* of the *dhanu*) 96 and 100 exists in the monetary scale, in which we have 2 *báraganis* or 'twelvers,' equal to one *panchi* or twenty-fiver."—Geography of India, vol. i. p. 575.

KASHMÍR WEIGHTS, from the Aín-i-Akbari, ii. p. 156, Gladwin's edition:—

1 *Tola* = 16 *máshas* of 6 *ratis* each, or 96 *ratis*.
1 *Gold mohur* = 16 *dáms* of 6 *ratis* each, 96 *ratis*, or 4 *ratis* more than the Dehli gold *mohur*.
Rabsasnu is a small coin of 9 *máshas* or 54 *ratis*.
Punchee is a copper coin in value $\frac{1}{4}$ *dám*; also called *kussereh*.
Bárahgáni is $\frac{1}{2}$ the *punchee* or $\frac{1}{8}$ *dám*.
Shukri is $\frac{1}{4}$ *bárahgáni*.
4 *Punchees* or *kusserehs* = 1 *hut*.
40 ,, ,, = 1 *sásnu*, and $1\frac{1}{2}$ *sásnu* = 1 *sikkah*.
100 *Sásnus* = 1 *lák* = 1000 royal *dáms*.

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TABLE OF LATER INDIAN AND OTHER FOREIGN WEIGHTS, from the *Haft Ḳulzum*.

1 جَو *jao* (यव) barley-corn	= 1 حَبّة *habbat*, "a grain, a seed."	
1 تشو *tashú*	= 2 حبه ,,	
4 جو barley-corns	= 1 قیراط *ḳirát* (κεράτιον) Carob.	
8 حبه ,,	= 1 دانگ (A. دانق) *dáng* (⅛th).	
48 جو ,,	= 1 درهم (A. درم) *dirham*.	
68 حبه ,,	= 1 مثقال *miṣḳál* (मिसकाल).	
306 حبه or 4½ مثقال	= 1 استار *astár*, سیر *sír* (सेटक).	
510 حبه or 7½ *miṣḳáls*	= 1 اوقیة *aukiat* (ounce).	
6120 حبه or 12 ,,	= 1 رطل *raṭl* (pound).	
12240 ,, 24 ,,	= 1 مَنّ *mann*.	
1⅞ *mann*	= کیلجة *kailajat*.	

See also variants in *Aín-i-Akbari*, Blochmann's Calcutta edition, p. 36.

Without encumbering this chapter with complicated figures, I summarize my estimates from the extant coins of the time of Shír Sháh and Akbar. Upon these data I reckon the *tola* of 12 *máshas* or 96 *ratis* at=186·0 grains, the Shír Sháhi *rupee* of 11½ *máshas* or 92 *ratis* at=178·25 grains, and Akbar's *rupees* at the same rate. This gives a return for the *rati* of 1·9375 grains. Shír Sháh's copper coinage, however little we could have expected anything definite from such crude materials, gives an absolutely identical result.[1] The late Col. William Anderson, an officer of considerable aptitude and experience in Oriental studies, estimated the *rati* from his own independent examination of the entire series of Akbar's mintages at the self-same 1·93 grains.[2]

I now reach the final stage of recapitulation and juxtaposition of the data embodied in the previous pages, which, however, simply resolves itself into a new application of the classical *Æs triplex*, or the history of the three parallel mechanical divisions of the old coinage elaborated *in situ*. These three concurrent denominations may be traced continuously till they are partially absorbed in the Muhammadan scheme of mint issues, though in some instances the old weights perseveringly made themselves felt in our own monetary system.

The first of these divisions consists of the archaic *puráṇa*, the leading denomination in the present inquiry, whose weight is officially defined as 32 *ratis*; extant specimens of these crude pieces of metal come fully up to the weight of 56 grains.[3] Proceeding onwards, and avoiding any possible complications due to Greek intervention, this same weight re-appears in the money of Sayála and Samanta Deva, the Brahmanical Sovereigns of the Panjáb and Northern India, in the ninth

[1] Pathán Kings of Dehli, p. 409.

[2] Prinsep's Essays, Useful Tables, p. 22. Prof. Story Maskelyne, of the Mineral Department, British Museum, also undertook an elaborate series of trials and comparisons of weights, with a view to determine the true amount of the jeweller's *rati*. His conclusions are limited to a range of from 2·483 grains to 2·40 grains.—Journ. R. A. S. ii. N.S. p. 153.

[3] Prinsep's Essays, i. p. 213; Sir W. Elliot, Madras Journal of Literature and Science, p. 229; Gen. Cunningham, Num. Chron. 1873, p. 199.

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century of our era.[1] It then runs through the entire issues of their Rájpút successors, from whom it passed to Kutb-ud-dín and the Muhammadan conquerors in A.D. 1191, when it had become so much of a national institution, that the representative coins were known by the appropriate name of *Dehliwálas,* the exact weight being retained, though the value had become so irregular that each piece had to be tested for its intrinsic worth by the inevitable money-changer. Once adopted into the Muhammadan system, this weight held its own in defiance of all surrounding modifications up to the time of the reconstruction of the coinage by Bahlól Lódi (A.D. 1451–1488), when we find it intact in the number of grains, but designated by the altered name of *tank,*[2] a weight frequently cited by Bábar himself and the subsequent writers of Akbar's period.

The palpable history of the 140-grain coin commences with the Greek adaptation of the Arachosian copper money noticed at p. 17. A prince of the name of Rámadata,[3] whose period we do not know, but whose coins bear every mark of antiquity, has left us specimens ranging as high as 137·5 grains; and other half pieces of assimilated fabric, of what is termed the Behat[4] group of coins, come fully up to the requisite 70 grains; while the minor subdivisions may be traced in coins which even now weigh 34·5 and 17·4 grains. We need not attempt to follow the onward course of this weight, in intermediate times, as it comes so prominently to the front when 'Alá-ud-dín Muhammad Sháh (A.D. 1295–1315), in his desire to diminish the cost of his army, undertook to cheapen supplies of all kinds,[5] and simultaneously reduced the current silver *tankah* of 175 grains to the 140 grains of the old copper standard of the *kársha.* We have none of 'Alá-ud-dín's coins of this pattern extant, but we meet with them in full and effective use under Muhammad bin Tughlak, in A.D. 1324,[6] when their weights are more accurately defined than could have been looked for in the coarser copper pieces of contemporaneous mintages. Muhammad bin Tughlak, it may be mentioned, introduced on his accession a new gold piece; for whereas the gold coins had hitherto corresponded with the concurrent silver pieces in name and weight of 175 grains, the new gold "*dínár*" was raised to 200 grains. These official changes afforded me fresh means of testing the accuracy of the assumed weight of the 80 *rati* or 140-grain coin, and the proportions required to meet the altered values, in each case, were found to tally exactly with that latter definition. Indeed, had further evidence been necessary, appeals might have been made to the standard weights of Bahlól Lódi,[7] or to the succeeding copper coinage of the early Mughals, the equitable measure of which was left to the responsibility of the various local mints,[8] whose administrators simply followed old traditions in the case of the baser metal, to

[1] Journ. R. A. S. 1848, ix. p. 177; Pathán Kings of Dehli, p. 58; Ariana Antiqua, 428; Prinsep's Essays, i. p. 313; Reinaud, Fragments Arabes, Journal Asiatique, Aout, 1844, Mars, 1845.

[2] Pathán Kings, p. 363. "Whatever doubt might once have existed as to the measure of this weight, it is now satisfactorily set at rest by the coins themselves: the *tank*, in short, is merely the old *dharaṇa* of 32 *ratis* (or 56 gr.)."

[3] Prinsep's Essays, i. p. 217, xx. figs. 47, 48.

[4] "So styled from the cognate specimens found in the Herculaneum of that name north of Saharunpore in the Doáb of the Ganges and Jumna."—Prinsep's Essays, i. p. 200, pl. xix.

[5] Pathán Kings, p. 158. My authority for this statement is the prose work of the celebrated Dehli poet, Amír Khusrú, entitled *Táríkh 'Alái*, or *Khazáin al Futúh.* It is as yet unpublished. Elliot's Historians, iii. p. 67; Journ. R. A. S. iii. N.S. p. 115.

[6] *Ibid.* p. 213.

[7] *Ibid.* p. 362.

[8] Anonymous Coins, *ibid.* p. 385.

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which, indeed, adhering to the custom of other lands, the alien Sovereigns did not care to lend their names or titles.

With this double scale of proportions any elaborate analysis or recapitulation of the data of the third ratio afforded by the 100 *rati*, or 175-grain coin, would be superfluous. Suffice it to say that, following out the early post-Vedic definition of the "*Śatáraktika*," we find this weight still ruling as the official standard for the gold and silver currencies under the Pathán Kings of Dehli from A.D. 1228[1] up to the accession of Muhammad bin Tughlak in A.D. 1324, when, although its supremacy was shaken for the time by the currency re-adjustments of that Prince of Moneyers, it was soon revived as the ordinary[2] mint *unit*, and came down to our time in the Benáres and other local issues,[3] in spite of the authoritative changes and attendant complications introduced by Shír Sháh and Akbar.

The combined scale of proportions, thus established, stands as follows :—

Puráṇa	56÷ 32 *ratis*	= 1·75 grains.
Kárṣha	140÷ 80 ,,	= 1·75 ,,
Ṣataraktika, or Tankah . .	175÷100 ,,	= 1·75 ,,

This, then, is the weight I finally propose to assign to the original *rati*. There may be some doubt about the second decimal, as we are not bound to demand an exact sum of *even* grains, or parts of a grain ; but the 1·7 *and something like* 5, may be accepted with full confidence, leaving the hundredth open to possible controversy, though from preference, as well as for simplicity of conversion of figures, I adhere to the $1\frac{3}{4}$. Under this system the definition of each ancient Indian weight by modern Troy grains will range as follows :—

Silver	1 *másha*	=	2	*ratis* or	3·5	grains.
	1 *dharaṇa*, or *puráṇa*	=	32	,, ,,	56·0	,,
	1 *ṣatamána*	=	320	,, ,,	560·	,,
Gold	1 *másha*	=	5	,, ,,	8·75	,,
	1 *ṣuvarṇa*	=	80	,, ,,	140·	
	1 *pala*, or *nishka*	=	320	,, ,,	560·	,,
	1 *dharaṇa*	=	3200	,, ,,	5600·	,,
Copper	1 *kárṣha*	=	80	,, ,,	140·	,,
Subdivisions of *kárṣha*	$\frac{1}{2}$	=	40	,, ,,	70·	,,
	$\frac{1}{4}$	=	20	,, ,,	35·	,,
	$\frac{1}{8}$	=	10	,, ,,	17·5	,,

[1] Pathán Kings, p. 46.

[2] *Ibid.* p. 208. Gold, No. 172, A.H. 727 ; and Nos. 175, 175*a*, p. 215, Silver Coin, No. 188, A.H. 734.

[3] Prinsep's Essays, ii. Useful Tables, 20 : "We find coins of Akbar's reign dug up in various places, and some weighing from 170 to 175 grains. Cabinet specimens of the coinages of Jahángír, Sháh Jáhán, and Aurangzéb have also an average weight of 175 grains pure, and the same prevails, with little variation, up to the time of Muhammad Sháh, in the coins of opposite extremities of the empire ; or struck in the Súbahs of Surát, Ahmadábád, Dehli, and Bengal."—p. 22: "Assay of Dehli Sonát = 175·0 grains *pure ;* Akbari of Láhór, 175·0 ; Sháh Jahání of Agra, 175·0, of Surát, 175·0."—p. 53 : "Benáres old weight 175·0, pure silver 169·17 ; Benáres old standard 175·0, pure silver 168·875."

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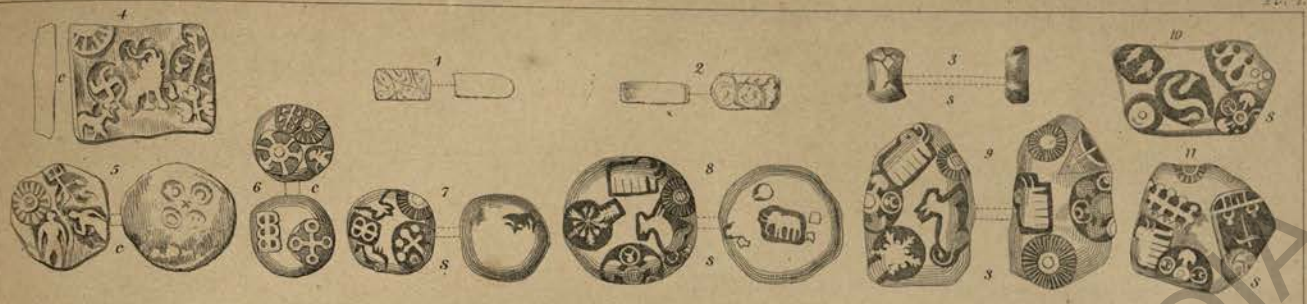

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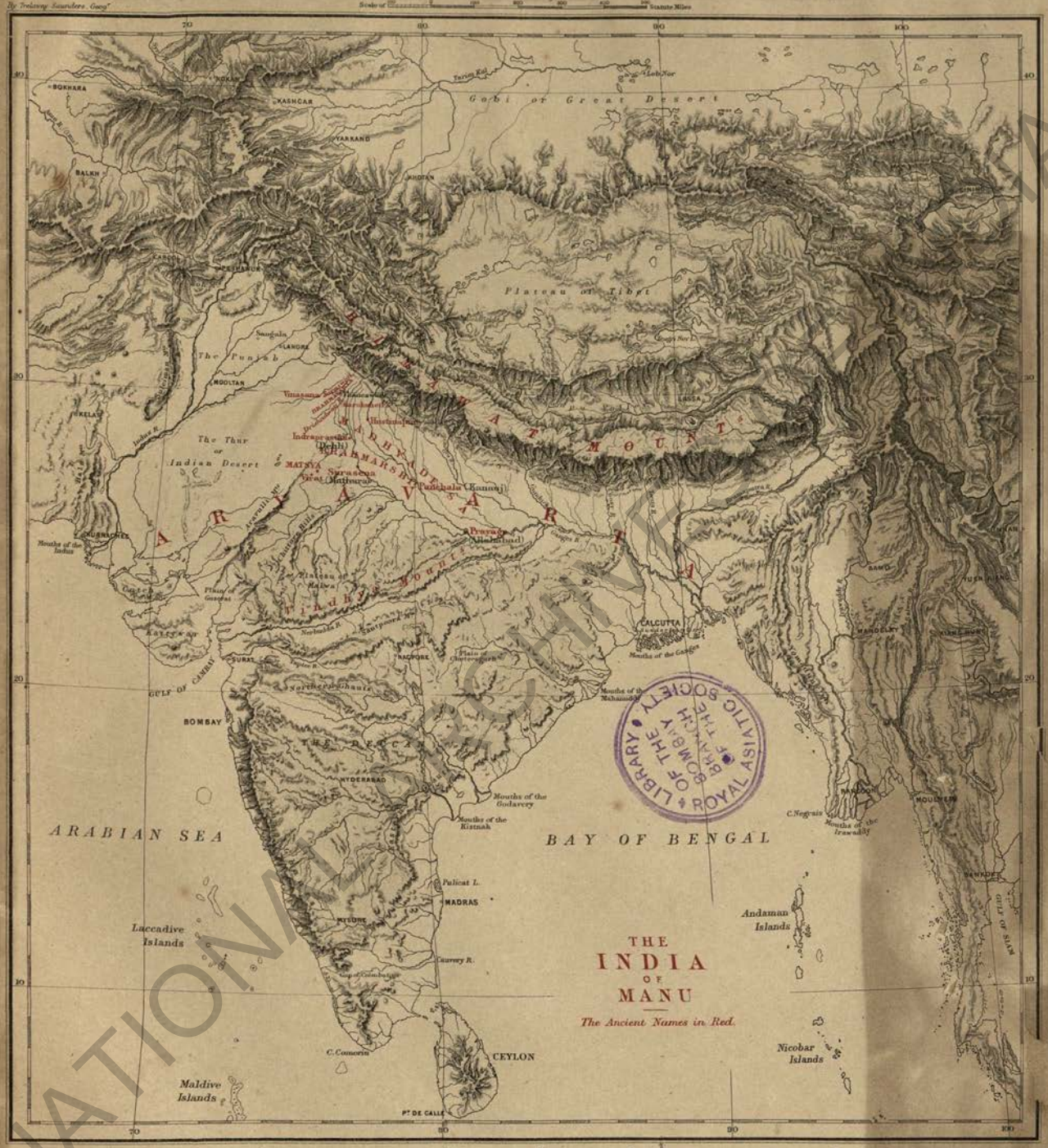
By Trelawny Saunders, Geog.r
Scale of Statute Miles
Gobi or Great Desert
Plateau of Tibet
HIMALAYA MOUNTAINS
ARYAVARTA
ARYA
VINDHYA Mountains
THE DECCAN
The Punjab
The Thur or Indian Desert
Plateau of Malwa
Plateau of Gondwana
BOKHARA
KASHGAR
YARKAND
BALKH
CABOOL
KANDAHAR
KELAT
MOOLTAN
LAHORE
AMRITSUR
DELHI
AGRA
Panchala (Kanauj)
Prayag (Allahabad)
Mathura
Saraswa
MATSYA
Indraprastha
Kurukshetra
Himalaya
Saugala
Vinasana
Mouths of the Indus
KURRACHEE
SURAT
BOMBAY
Mouths of the Nerbudda
Mouths of the Taptee
Mouths of the Mahanuddy
CALCUTTA
Mouths of the Ganges
SUNDERBUNDS
CHANDERNAGORE
CHANDERNAGUR
MOULMEIN
C. Negrais
Mouths of the Irrawaddy
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Mouths of the Godavery
Mouths of the Kistnah
Pulicat L.
MADRAS
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Cape of Coromandel
C. Comorin
CEYLON
Pt DE GALLE
Maldive Islands
Laccadive Islands
Andaman Islands
Nicobar Islands
ARABIAN SEA
BAY OF BENGAL
GULF OF CAMBAY
THE INDIA OF MANU
The Ancient Names in Red.
LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY
VERTICAL SCALE in Feet
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Kamet Peak
Dhaulu Peak
Nanda Peak
Trisúl Peak
Kamet Peak
Kamet Peak
Nanda Devi Peak
Nanda Devi Peak
Kamet Peak
Kamet Peak
Kamet

Ruins of the JETAWANÁRÁMA, a Buddhist Temple at PULASTIPURA. (See § 37.)

ON THE ANCIENT COINS AND MEASURES OF CEYLON.

PART I. REFERENCES TO COINS IN BUDDHIST LITERATURE.

1. Ceylon and Kashmír are the only parts of India which pretend to possess a continuous native history. That of Ceylon is much the more ancient and complete, and as in it coins are not unfrequently mentioned, even in the earliest periods, it might have been supposed that some specimens of great age would have survived to our own days. Such is not however the case. We have at present only one series of coins of finished form and of a comparatively late date, beginning in the middle of the twelfth and ending at the close of the thirteenth century.[1] Our subject therefore divides itself naturally into two parts: in the first of which will be considered the data regarding coins and measures found in the Buddhist literature of Ceylon; while in the second those mediæval coins which have come down to us will be described and illustrated.

2. Mr. Thomas has already pointed out[2] how frequent are the allusions to money in the

[1] Just as I go to press I learn that there are some coins in the Colombo Museum with illegible inscriptions in square Pâli characters. It would be interesting to learn whether they bear any of the signs, such as *j* or *s*, which have only as yet been found in Ceylon inscriptions. If not, they are probably importations from India.

[2] In his introductory essay to the Numismata Orientalia, 'Ancient Indian Weights,' p. 40.

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sacred literature of the Buddhists; and as these occur in books of very different ages and authenticity, it will be necessary to quote and discuss the most important passages. Without a detailed examination of the passages themselves, we may easily be led to draw conclusions much too wide. Spence Hardy's statement,[1] for instance, that 'in the most ancient laws of the Buddhists the distinction is recognized between coined money and bullion,' is not confirmed by the texts hitherto accessible, unless the word 'coined' be taken in an unusually extended sense.

3. The time has scarcely arrived when anything can be affirmed with certainty as to the age of the different books of the Northern Buddhists: they show a state of belief much later and more developed than that of the Southern Church; but they claim a very high antiquity, and it is well known that amongst these ruder peoples the Buddhist mythology had a much more rapid development than that which took place in Magadha and in Ceylon. Buddhism became the State religion of the Indo-Skythians under Kanishka at about the beginning of our era, but no canon of the Northern Buddhists was settled at the council held under his auspices.[2] The books considered sacred by the Northern Church are mostly of much later date; but some of them were certainly translated into Chinese in the first century A.D.—that is, if reliance can be placed on the later native historians of China,[3] besides whose statements we have very slight data of any chronological value. Eugène Burnouf has given several instances of the mention of coins in those portions of the Northern Buddhist books he has translated,[4] and has discussed their values in a special note (p. 597). As all these works are of unknown authorship and date, but probably at least 700 years after our era,[5] the only conclusion to be drawn from these references is that they add simply nothing to our knowledge of the dates at which the coins mentioned in them were first used.

4. The canon of the Southern Buddhists was settled two centuries and a half earlier than the time of Kanishka, viz. under the Emperor Aṣoka in Pâṭaliputra, about 250 B.C.; and it includes separate works by different authors.[6] The following passage occurs in the first chapter of the inedited Mahâ Vagga in the Vinaya Pitaka, and also in the first chapter of the *Kammavácam*, containing the liturgy used at the admission of laymen to the Buddhist order of mendicants, of which several translations and editions have already appeared.[7] (p. 6, line 4, of Mr. Dickson's edition of the Upasampadâ-Kammavácâ) 'If any mendicant takes a *páda* (*i.e.* a quarter), or anything

[1] Eastern Monachism, p. 66.

[2] Lassen, Indische Alterthumskunde, 2nd ed. vol. ii. p. 856. My 'Buddhism,' p. 239. 'Foe Koue Ki,' p. 248.

[3] Beal, Travels of Fa Hian, etc., pp. xx, et seq.; Romantic Legend of Sâkya Buddha, p. vi.

[4] Thus the *suvarṇa* is spoken of in the Kanakavarṇa sûtra and in the Púrna avadâna (Burnouf, Introduction à l'histoire du Bouddhisme, pp. 91, 238, 243, 245); the *kârshâpaṇa* in the Divya avadâna (ibid, p. 147; compare Hodgson's Essays, 1874, p. 20) and in the Púrṇa avadâna (ibid, pp. 236, 243, 258); the *purâṇa* in the Divya avadâna (ibid, p. 146); the *mâsaka* in the Púrṇa avadâna (ibid, p. 243); the *kâkaṇi* in the Aṣoka avadâna, which is part of the Divya avadâna (ibid, p. 392, and compare on the work itself Hodgson's Essays, 1874, p. 17); and lastly the *dînâra* in this latter work and in the Hiranyapâṇi avadâna (ibid, p. 432, note).

[5] Ibid, pp. 64, 231, 555; Weber's Sanskrit Literature, p. 262.

[6] This is clear from internal evidence: compare also James D'Alwis, *Buddhist Nirvana*, pp. 18, 19.

[7] The Padre Maria Percoto, Missionary in Ava and Pegu, translated it into Italian in 1776, and Professor Adler into German for the first volume of Egger's Deutsches gemeinnütziges Magazin, Leipzig, 1787. The Rev. Benj. Clough translated it into English in the second volume of the Miscellaneous Translations from Oriental Languages, London, 1834, and most of it was edited in Pâli, with a Latin translation, by Professor Spiegel, Bonn, 1841. The best edition is that by Mr. Dickson in the J.R.A.S. for 1875, with English translation and notes.

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of the value of a *páda* or more, he is *ipso facto* unfrocked.' Mr. Dickson translates *páda* 'the quarter of a pagoda,'[1] the pagoda being a small gold coin lately current in South India and worth 7*s.* 6*d.* Mr. Childers says in his Dictionary, 'There is a coin called pádo (Ab. 480): Subhúti quotes *poráṇa-kahápaṇassa catuttho bhágo pádo*, and states it is worth about sevenpence.' The Abhidhánappadípiká, to which the reference is given, was written in the twelfth century, and makes it the fourth part of a weight, apparently of the *nikkha*, which is made equal to five suvaṇṇas (§ 23 below). So that we have three modern authorities each giving a different meaning to the word. It is evident that they do not really know in what sense it was originally used, and there is nothing to prove that it meant a coin at all; it may have been a weight, either of gold, silver or copper, recognized as a basis of calculation or a medium of exchange.[2] All that can be said is that it was certainly of small value.

5. In the Dhammapada, a collection of ethical verses from other books of the Three Piṭakas, and one of the latest works included in the canon by Aśoka's council, the word kahápaṇa is used in verse 186: *Na kahápaṇa-vassena titti kámesu vijjati*, 'Not by a rainfall of kahápaṇas will there be satisfaction in the midst of lusts.' The exact derivation and meaning of the word *kahápaṇa* is not quite so clear as one could wish. The corresponding Sanskrit word kárshápaṇa occurs already in Manu and Páṇini, of which the former is certainly, and the latter probably, earlier than the earliest possible date of the Dhammapada. It is clearly derived from karsha, the name of a small weight; but *paṇa*, which is usually supposed to be the second part of the compound, would not explain the second *á*, while the root *paṇ* 'to barter or bet,' is not used with the prefix *á* except in the nominal derivative *ápaṇa* 'market,' which does not help us much. In trying to determine the exact meaning from the texts, we are met with an ambiguity of expression which is only the reflexion of an ambiguity in idea; just as even in English the words 'coin' and 'money' are very vaguely used. Coin may, I think, be legitimately used in two senses; firstly, of pieces of metal bearing the stamp or mark of some person in authority as proof of their purity, and of their being of full weight; and secondly, of pieces similarly stamped, but thereby acquiring a value beyond that of an equal weight of metal (by the mark or stamp implying a promise to receive the coin at a higher than its intrinsic value). The latter, like our pennies and shillings, might be more appropriately termed tokens. Now there was a time in India, before coins in either of these senses were struck, when mere pieces of bullion without stamp at all, or merely with some private stamp, were used as money—that is, as a medium of exchange:[3] and the word kárshápaṇa, as used by the authors mentioned above, may mean either coins proper of the weight of a karsha, or only such pieces of metal of that weight. The latter was almost certainly its original meaning both in Sanskrit and Páli, and is, I think, the meaning in this verse of the Dhammapada. Buddhaghosha mentions[4] a gold and silver as well as the ordinary (that is, bronze or copper) kahápaṇa; and Professor Childers thinks that only gold pieces can be referred to in our

[1] Loc. cit. p. 13.

[2] Böhtlingk and Roth refer to a passage in the Śatapatha Bráhmaṇa where páda means the fourth of a certain gold weight; but to none where it means coin. They explain the change of meaning from 'a foot' to 'a quarter' through the idea of one leg being the fourth of a quadruped.

[3] Mr. Thomas, Ancient Indian Weights, p. 57.

[4] In the passage quoted below, § 13.

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passage. But copper pieces will satisfy the requirements of every other passage, except one legendary one, where the word occurs;[1] and considering the much greater value of copper then than now, it is not so certain that we need even here take the word in any other than its ordinary sense. The value of the kahápaṇa changed of course with the varying value of copper, and even its weight may have varied a good deal; as much at least as different specimens of the fruit of the karsha (*Terminalia bellerica*) vary among themselves.[2] Its size and shape are uncertain; but this at least can be said, that the sculptor of the bas-reliefs at Bárahát[3] (who cannot have lived much more than a century later than the compiler of the Dhammapada) makes them square. Lastly, it should be mentioned that, according to Mr. Childers, the word kahápaṇa itself meant primarily a small *weight*,[4] and that our authorities differ hopelessly about the weight of the karsha: the Sanskrit authorities making it equal to *sixteen* máshas, each of which=2½ másakas=5 ratis; while Moggallána (§ 23) makes the akkha (which, teste Böhtlingk-Roth, is the same as the karsha)=2½ másakas=5 ratis (that is=*one* másha). On the former calculation Mr. Thomas makes the kárshápaṇa=to 140 grains, one of our current pennies weighing about 145 grains. M. Léon Féer quotes a form gahápaṇa from the Játakas (Etude sur les Játakas, p. 102). The old form Karisápaṇa, mentioned by Moggallána (v. 481), has not yet been found in the texts.

6. There is a curious expression at Dhammapada, v. 108: 'Whatever sacrifice or offering a man may make here during a whole year in order to get merit, all of it is not worth *a quarter*.'[5] The commentator explains it 'to mean a quarter of the virtuous mind of one reverencing holy men.' This seems forced, but must be, I think, the real meaning of the words, taken in the connexion in which they stand.

7. The only other portion of the three Piṭakas published is the Khuddaka Páṭha, the shortest book in the Buddhist Bible, a selection of Buddhist hymns edited by Mr. Childers for the Journal of the Royal Asiatic Society, 1869. In it no mention is made of coins, but it is said that 'in the other world there will be no trafficking by means of gold.'[6] These two works would scarcely have been looked upon as sacred by the Council of Aṣoka held in B.C. 250, unless they had been composed some time before it. They may therefore be approximately placed at least as early as the end of the fourth century before Christ.

8. I cannot refrain from adding here a reference to a passage occurring in the Párájika of the first Piṭaka, and also in the Raṭṭhapála Sutta of the second Piṭaka, although the texts are not yet accessible. In the former we have an account of the manner in which a certain Sudinna

[1] They are all quoted in the following sections. The exception, a doubtful one, is referred to below, § 15. Játaka 94, 23, compared with 93, 22. Compare Thomas, *l.c.* p. 41, note 6.

[2] Mr. Thomas considers that this Myrobalan seed formed the basis upon which the old *Karsha* of 140 grains was framed. It constituted an article of extended commerce, in its dry state it was little subject to change, it was readily available in the Bázárs as a countercheck of other weights, and finally the ordinary weight accords closely with the required amount. Indeed selected specimens of desiccated seed from Bhilsa, now in the India Museum, weigh as high as 144 grains.

[3] Cunningham, Report of the Bengal As. Soc., quoted in Ancient Indian Weights, p. 59, note, compared with § 15 below.

[4] So also see Féer, Etude sur les Játakas, p. 102. And Colebrooke, Essays (ed. Cowell), vol. i. p. 531, says, 'A paṇa or kárshápaṇa is *a measure* of copper as well as of silver.'

[5] Fausböll, p. 34, sabbam pi taṁ na chatubhágam eti. Comp. p. 288 and the passage quoted by Prof. Max Müller in his note to v. 157.

[6] N'atthi hiraññena kayakkayaṁ, p. 11 of the separate edition. Prof. Childers translates 'no trafficking *for* gold,' but the instrumental case is doubtless used of the *medium* of exchange.

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persuaded his parents to allow him to enter the Buddhist Order of Mendicants, and was afterwards tempted by them to return to a layman's life. In the latter a similar story, for the most part in the very same words, is told of Raṭṭhapála. In the translation of the former by the Rev. S. Coles we read that Sudinna's mother 'made two heaps for him, one of gold coins and the other of gold . . . . , and covered over those heaps with mats.'[1] In the translation of the latter by the Rev. D. J. Gogerly we read that Raṭṭhapála's father 'caused to be piled up a great heap of coined and uncoined gold, and covered it with a mat.'[2] The proffered wealth is in each case refused, the mendicant advising that 'the gold coins and the gold' (as Coles renders) or 'the gold and bullion' (as Gogerly here translates) should be thrown into the river. I have little doubt that the Páli words in all four passages are identical. Can they be the same as those used in the formula quoted by Burnouf as the standing mode of describing Gautama's own entry into the mendicant life? Burnouf quotes the passage from two Suttas of the second Piṭaka; and the words in question are simply *pabhútaṁ hiraññá-suvaṇṇaṁ*.[3] The first word, pabhúta, is either an archaic form of, or more probably a simple misreading for, the usual pahúta[4] 'much,' while each of the two parts of the following compound signifies 'gold.' That there was some shade of difference in the meaning of the two words is clear I think from the expression *hiraññaṁ vá suvaṇṇaṁ vá* 'either gold or gold,' in a commentary on the Pátimokkha,[5] but what the difference was when the second Piṭaka was composed is not so easy to say. Both words are constantly used both in Sanskrit and Páli in the simple sense of gold, both words also occur as names for a particular weight.[6] As names of weights the Suvaṇṇa according to Moggallána would seem to weigh forty Hirañña, for it is equal to forty akkhas, an aksha is the same as a karsha, and hirañña at Játaka, p. 92, is replaced by kahápana at page 94.[7] But the usage of the fifth or twelfth century after Christ is poor evidence for the usage of the fourth century before Christ. It is quite possible that 'treasure and gold,' or 'gold and bullion,' or 'pounds of gold,' or 'yellow gold,' would be the right rendering of hirañña-suvaṇṇaṁ in the passages under consideration; but to decide these points we must have more texts before us. It will be of advantage, meanwhile, to have noted the similarity of the passages.

9. The date of the next work we have to consider is very uncertain. The orthodox Buddhists believe Kaccáyana's Grammar to be the work of a contemporary of Gautama: this is certainly incorrect, and even as late as the time of Buddhaghosha it was not acknowledged as the supreme authority on Páli grammar. The rules, explanations and examples are acknowledged by tradition to be by different hands, and the passage now to be quoted occurs among these later additions.[8] The Sinhalese tradition is, however, strong evidence that the work was composed in India and at a very early date—early, that is, as compared with the commentators

[1] Journal of the Ceylon As. Soc. 1876–1877, p. 187.

[2] Journal of the Ceylon As. Soc. 1847–1848, p. 95.

[3] Burnouf, Lotus de la bonne Loi, p. 863. Comp. Féer, Etude sur les Játakas, p. 107.

[4] *bh* and *h* can scarcely be distinguished in Ceylon MSS.

[5] Minayeff, p. 78, on Pátimokkha, ch. 8, v. 13.

[6] Hirañña is so used at Játaka 92, 22, Mah. 163, 2; Suvaṇṇa below (§ 23); and both the Suvaṇṇa and the Kárshápaṇa weighed 80 *ratis* according to Manu. Thomas, *loc. cit.* p. 13.

[7] So in Böhtlingk-Roth the hirañña is said to be = the karsha.

[8] On Kaccáyana's date see James D'Alwis in his 'Introduction' to Kaccáyana; Weber's review of this Introduction in Indische Streifen, vol. ii. pp. 316–343; and especially Burnell 'On the Aindra School of Sanskrit Grammarians,' 1875, pp. 61–62.

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of the fifth century. At page 130 of M. Senart's excellent edition, under examples of the use of the ablative, occurs the curious expression: *satasmá* or *satena bandho naro*, 'a man bound for a hundred,' where one would expect baddho, and where the ablative is certainly strange. In a similar way, at Játaka 224, 24, we have *satena kítadáso*, 'a slave bought for a hundred.' Whether in these passages 'a hundred' means coins, or shells, or cattle, or weights of bullion, or corn, or other goods, is not certain, but I should take it to mean one hundred pieces of copper, *i.e.* kahápaṇas.[1] It will be seen hereafter that in the fifth century in Ceylon higher numerals were used in the same manner. Again, at p. 158, *upa nikkhe kahápaṇaṁ*, 'the kárshápaṇa is less than the nishka,' is given as an example of the use of the locative; here the grammarian who made the example was evidently thinking of weight, as the word nikkha is never in Páli used for a coin.[2] In Manu the weight of the nishka is 320 *ratis* in gold as against 80 ratis for the kárshápaṇa in copper.

10. We next come to the Pátimokkha, a compilation of unknown date, giving a classification, from the Vinaya Piṭaka, of offences against the rules of the Buddhist order of mendicants. It is certainly very old, but, not having been included in the canon by Aṣoka's Council, can scarcely have existed long before that time. A commentator of the fifth century[3] says indeed, according to Mr. Turnour's translation, 'Bhagawá (*i.e.* Gautama himself) taking his place in the midst of this assembly, held in the Weluwana edifice at Rájagaha, in the first year of his Buddhahood, ... propounded the Pátimokkham;' but it is impossible that the book so called should have come into existence until after the monastic system was worked out and settled in great detail, which it certainly was *not* at the time referred to. The same commentaries are used for the Pátimokkha and the Vinaya Piṭaka, and the passages to be quoted probably occur also word for word in the latter. At verses 8, 9, and 10 of the sixth chapter [the Nisaggiya] *cívara-cetápannáni* are mentioned, which Mr. Dickson translates 'money to buy robes.'[4] The origin of the expression is doubtful, Professor Childers ascribing the latter part of the compound to a confusion between the two roots *ci* and *cit*, and Mr. Minayeff, Mr. Dickson and one of the commentaries,[5] spelling the word cetápanna and making it masculine, while Professor Childers, another Páli commentary and M. Senart,[6] spell it cetápana, which makes it neuter. The former commentator explains it 'gold, or a pearl, or a jewel, or coral, or cotton cloth, or thread, or raw cotton,' that is to say, materials which could be made into a robe or bartered to procure one; the latter explains it simply 'price' or value (múla), but does not say in what. The term may therefore be rendered 'means to procure a set of robes,' and does not necessarily infer the existence of coined money.

[1] M. Senart translates 'pièces de monnaie,' but his attention was not directly drawn to this point. The curious may compare Judges xvii. 2, 3, 4, where 'hundreds' of silver are spoken of, and where the Authorized Version inserts the word 'shekels,' while some scholars would prefer to understand lambs.

[2] See below, § 23. Thomas, Anc. Ind. Weights, p. 13.

[3] The Madurattha-Vilásiní, Journal of the Bengal As. Soc. vol. vii. 1838, p. 816. A set of rules called Pátimokkha is five times mentioned in published parts of the Piṭakas (Dhammapada, verses 185, 375; Párájika, J. Ceylon As. Soc. 1867, p. 175; Sutta Nipáta, p. 95; and Sámañña-phala Sutta, Burnouf, Lotus, 463). But it is, to say the least, doubtful whether the book now known as Pátimokkha is referred to. Comp. Hardy, Manual, p. 198; Fausboll's Játaka, p. 85; Turnour in the J.B.A.S. vi. 519, 523; Beal, Catena, p. 189. That the word Pátimokkha was in use before the work so called assumed its present shape, is clear from the fact that the word occurs twice in the Pátimokkha itself. Dickson, p. 27.

[4] Page 47 of his separate edition from the Journal of the Royal Asiatic Society, 1875.

[5] P. 78 of Mr. Minayeff's edition, St. Petersburg, 1869.

[6] P. 322 of his separate edition of Kaccáyana.

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11. Verses 18 and 19 say: 'If a priest receives or gets another to receive for him gold and silver [coin], or if he thinks to appropriate [money] entrusted to him, it is a nisaggiya fault. If a priest makes use of the various kinds of *money*, it is a nisaggiya fault.' I quote from Mr. Dickson's translation, but the words I have bracketed are not found in the original, and the word 'money' in the latter verse is in Páli *rúpiya*, which Professor Childers in his Dictionary translates *silver, bullion*. Neither the Páli *rúpiya*, nor the Sanskrit equivalent *rúpya*, are derived from rúpa in its sense of image, figure, or are ever used in the sense of 'bearing an image,' for which the correct expression is *rúpin*.[1] Silver is called *rúpiya* on account of its beauty, its shining appearance, just as gold is called *suvaṇṇa* on account of its fine colour. The commentator on this passage[2] explains *rúpiya* by *játarupa-rajata, gold and silver*, but this is rather a gloss on the *rule* than a philological explanation of the *word*. Moggallána distinctly confines the sense of the word to silver.[3] The text is as follows:—18. Yo pana bhikkhu játarúparajatam uggaṇheyya vá uggaṇhápeyya vá upanikkittam vá sádiyeyya nisaggiyam pácittiyam. 19. Yo pana bhikkhu nánappakárakam rúpiyasamvoháram samápajeyya nisaggiyam pácittiyam.[4] I would translate: '18. If again a mendicant should receive *gold* or *silver*, or to get some one to receive it for him, or *allow it to be put in deposit for him*, it is a fault requiring restitution. 19. If again a mendicant should *engage in any of the various transactions in silver*, it is a fault requiring restitution,' where 'transactions in silver' must refer, I think, to the use of silver as a medium of exchange.

12. In the Bhikkhuní-Pátimokkham, or Rules for Nuns, occurs the passage, 'A nun collecting for a heavy cloak may collect as much as 4 kamsas; if she should collect beyond this, it is a fault requiring restitution. A nun collecting for a light cloak may collect as much as $2\frac{1}{2}$ kamsas; if she should collect beyond this, it is a fault requiring restitution.'[5] There is some uncertainty as to the derivation and meaning of *kamsa*, which, as a measure of value, is only found in this passage. The word usually means copper, bronze, or a brass pot or plate; but the commentator[6] explains it here as 'four kahápaṇas,' an explanation found also in Moggallána's vocabulary.[7] In Sanskrit literature the word is only found in the sense of a brass pot or cup; but the Sanskrit lexicographers give kamsa as an equivalent of áḍhaka (a measure of capacity).[8] Mr. Childers regards it here as a derivative from, or a dialect variety of, karsha; but this seems indefensible, and the use in primitive times of a particular form of brass cup or plate as a measure of value is by no means unlikely, while the expression 'a bronze' is exactly paralleled by 'a copper' as used sometimes in English.[9] The tradition preserved in the Kankhá Vitaraní, that the weight of the kamsa, as a measure of value, was considered equal to four kahápaṇas, may or may not be well founded; one can only say that if the value were really so small, the idea of a cup or vessel can scarcely have been present to the mind of those who used the word.

[1] Páṇini perhaps thought differently. See the note in Anc. *Ind. Weights*, p. 39, but the passages quoted by Böhtlingk-Roth are conclusive.

[2] Minayeff, p. 80.

[3] *Verses 486, 489, 903.*

[4] Minayeff, p. 10. Dickson, p. 20.

[5] Minayeff, p. 103.

[6] Kankhá Vitaraní, ibid, p. 104.

[7] Abhidhánappadípiká, 905; he probably follows the fifth century commentary.

[8] Böhtlingk-Roth, s.v. Compare below, § 32, table; and Thomas, Anc. Ind. Weights, p. 26.

[9] Compare also the use of suvaṇṇa, § 23, and of ridi in Sinhalese.

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13. In the commentaries written in Ceylon in the fifth century A.D. by Buddhaghosha, we find the following explanations. At page 66 of his edition of the Pátimokkha, Minayeff quotes a commentator's explanation of chora, a thief, as being one who takes anything of the value of five másakas[1] or more. Here the word másaka might just possibly mean a weight, but in the following passage that can scarcely be the case. The Kankhá-vitaraṇí on Pátimokkha vi. 10, quoted above, calls gold and silver and *kárshápaṇas* and *másakas* forbidden objects.[2] Another commentary on verse 18 says: 'By *rajata* (silver) is meant the kárshápaṇa, the metal másaka, the wooden másaka, the lacquer másaka, which are in use.'(!) And the Samanta-pásádiká on the same passage says:[3] '*játarúpa* is a name of suvaṇṇa (gold), which is also called satthuvaṇṇa because it is like the colour of Gautama Buddha,'(!) and after explaining *rajata* (which explanation Minayeff has left out in his edition, perhaps because it is the same as that given above), goes on: 'In this passage kahápaṇa is either that made of gold or that made of silver (*rúpiya*), or the ordinary one; the metal másaka means that made of copper, brass, etc.; the wooden másaka means that made of sára wood or of the outside of the bambu, or lastly of palmyra leaf, on which a figure has been cut (*rúpaṁ chinditvá kata-másako*); the lacquer másaka means that made of lac or gum, on which a figure has been caused to rise up' (*rúpaṁ samuṭṭhápetvá kata-másako*). Then, after explaining the words 'which are in use,' it continues: 'Lastly, every kind should be included, whether made of bone, or skin, or the fruits or seeds of trees, and whether with a raised image or without one.' It adds that the four forbidden things are silver, gold, the gold másaka, and the silver másaka, a different explanation from that given above. The annexed cut of a lacquer medal in the possession of Col. Pearse, R.A., may perhaps represent such a lacquer másaka as has just been referred to.

14. We next come to the Játakas, the date of the present text of which is very uncertain. It seems that a collection of Játaka stories was one of the earliest Buddhist books, and was included in the canon as settled by the Pátaliputra Council under Aṣoka; but it is the only book of that canon which has not been handed down to us in a shape purporting to be identical

[1] The másaka is the seed of a bean (see Thomas, loc. cit. p. 11), and is used in this sense at Mah. 239, 3. In Hardy's Legends and Theories of the Buddhists, sages are mentioned who 'had no cattle, no gold (not even as much as four másas, each of which is of the weight of six mára seeds) and no grain.' See below, § 23.

[2] Minayeff's Pát. p. 79. Comp. end of this paragraph.

[3] Ibid, p. 80. The full text is as follows:—*Játarúparajatan ti: játarúpaṁ náma suvaṇṇassa námaṁ, taṁ pana yassá Tathágatassa vaṇṇasadisaṁ hoti tassá Satthuvaṇṇo vuccatíti padabájane vuttaṁ .... Tattha kahápaṇo ti: suvaṇṇamayo vá rúpiyamayo vá pákatiko vá. Lohamásako ti: tambalohádíhi katamásako. Dárumásako ti: sáradáruná vá velupesikáya vá antamaso tálapaṇṇena pi rúpaṁ chinditvá katamásako. Jatumásako ti: lákháya vá niyyásena vá rúpaṁ samuṭṭhápetvá katamásako. Ye voháraṁ gacchantíti: iminá pana pádena yo yo yattha yattha janapade yadá yadá voháram gacchati. Antimaso aṭṭhimayo pi cammamayo pi rukkhaphalabíjamayo pi samuṭṭhápitarúpo asamuṭṭhápitarúpo sabbo pi saṅgahetabbo.* The greater part is given by Mr. Thomas *loc. cit.* p. 42, note.

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with that accepted by the Council. The text exists now only in the commentary, the date of which is itself unknown, though it was certainly written in Ceylon, and probably as late as the fifth century after Christ. No kind of literature is more susceptible of verbal alteration than the easy prose narrative which forms the bulk of these tales; so that, although the text is throughout kept distinct from the commentary, it cannot be depended upon as an accurate reproduction of the original form. And again, though the mention of *money* is so mixed up with the gist of some of the stories that it can scarcely be due in those cases to interpolation, and may very possibly date from the first invention of the stories in the time of Buddha, or even earlier, the names mentioned may have been inserted afterwards. The Páli version of the Játakas is now being published by Mr. Fausböll; and the first part, containing the Páli text of the Introduction and of 38 Játaka stories, has already appeared in Copenhagen. In these stories are the following notices of money. In the Seri-váṇija Játaka[1] some poor people ask a hawker to take an old pot in exchange for his wares. The pot was gold, but so old and dirty that they did not know it. The hawker sees their foolishness, and hoping to get it for nothing, says it is not worth even half a *másaka*, and throwing it on the ground, goes away. Immediately afterwards another hawker comes up, and being made a similar offer, honestly tells the ignorant owners that their old pot is worth 'a hundred thousand' (sata-sahassaṁ),[2] but gives them for it 500 *kahápaṇas* and goods 'worth 500' (probably kahápaṇas). He then takes back eight kahápaṇas, and giving them to the captain of a vessel just then sailing, he escapes with the pot. The other hawker soon returns, and offers something of small value for the pot, and when its owners tell him they have given it to another hawker for 'a thousand' (sahassaṁ), he vainly pursues him, and then dies of grief and chagrin. The good hawker in this tale is the future Buddha; and had it been altered, the fact that he gave less than 'a thousand' for what was worth 'a hundred thousand' might have been easily got over by some interpolation; in any case the mention of money forms so important a part of the story that it must belong to a very early form of this Játaka.

The next mention of money is in the Cullaka-seṭṭhi Játaka.[3] On the advice of the future Buddha, a man earns 16 kahápaṇas in one day by the sale of firewood, and afterwards sells grass to the king's stable-keeper for 'a thousand,' and subsequently acquires a capital of 'a hundred thousand,' and marries the future Buddha's daughter.

In the Nandi-vásala Játaka[4] we have the history of a prize ox who first loses a bet (abbhutaṁ) of 'a thousand' for his owner, when the latter calls him vicious; and then wins a wager of 2000 when he calls him gentle; and in the next story the future Buddha, again under the form of an ox, wins for his mistress a bag containing 1000,[5] being hire for drawing 500 carts at two kahápaṇas a cart.

[1] Fausböll's Játaka, p. 111.

[2] At pages 69, line 15, and 178, line 21, other gold pots are mentioned worth 100,000 each.

[3] Fausböll's Játaka, p. 121.

[4] Ibid, p. 191.

[5] Sahassatthavika, J. 195, 20, compare 54, 1, and 55, 23. See on a parallel expression in the Rig-Veda, Mr. Thomas, Anc. Ind. Weights, p. 33.

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15. Mr. Fausböll has also published from time to time 27 other Játaka stories,[1] but in these no mention is made of money. I pass on therefore to the commentary itself, in which the above stories are included. It commences with a short history of previous Buddhas, and then gives a succinct biography of Gautama Buddha. In the former a rich man says of his ancestors, 'when they went to the other world, they did not take with them even one kahápaṇa;' and *kahápaṇas* and leaden pieces (*sisa*) are mentioned among other kinds of wealth.[2] In the latter it is said that Vessantara's mother gave him at his birth a purse containing 1000, and Nalaka is said to have been born in a family worth 87 koṭis.[3] Buddha[4] gives Kiságotamí a necklace 'worth a hundred thousand,' and Anáthapiṇḍika is said to have paid 18 koṭis of gold (!) for the ground on which he built, at a further cost of 18 koṭis, the Jetavana, the first Buddhist monastery.[5] It is noteworthy that the only mention of gold kahápaṇas should be in this late version of an early legend, and in the commentator referred to above (§ 13).

16. In Buddhaghosha's commentary on the Saṅyutta Nikáya, written in the early part of the fifth century, king Kappina, a contemporary of Buddha, is said to have given 1000 to certain merchants;[6] and in his commentary on the Dhammapada (Fausböll, p. 333, and comp. p. 235) he contrasts a 'thousand' with a kákaṇiká, which is the same as the gunjá (below, § 23).

17. In another of Buddhaghosha's commentaries is the following passage: 'On that occasion the bhikkhus (mendicants) of Wesáli, natives of Wajji, on the Uposatha (Sabbath) day in question, filling a golden basin with water and placing it in the midst of the assembled mendicants, thus appealed to the upásakas (lay disciples) of Wesáli who attended there: 'Beloved, bestow on the order either a *kahápaṇa* or a half, or a quarter of one, or even the value of a *másа*.'[7] It would seem from this passage that Buddhaghosha considered the *másа* as less than a quarter of the value of the kahápaṇa, and *másа*, which form has not yet been found elsewhere, is, I suppose, the same as *másaka*. It should be noticed that the sentence occurs in a description of the Second Council 100 years after Gautama's death, which council, some think there is reason to believe, never actually took place; and that the Mahávansa, describing the same event, only mentions kahápaṇas. But that there was some such heresy there can be little doubt, as Aṣoka in the eighth Girnar edict talks of honouring Theras with gold.[8]

18. In this passage of the Mahávansa, which is a little later, 'gold and other coins'[8] are mentioned in Turnour's translation as one of the exceptions which the Wajjian heretics allowed themselves, only 100 years after the Teacher's death, to his comprehensive rule that the members

[1] For the names and dates of these publications see my 'Report on Pali and Sinhalese,' at p. 64 of the Annual Address of the President to the Philological Society for 1875.

[2] Játaka, p. 2, line 25; p. 7 line 3 from end; and p. 33.

[3] Játaka, 55, 18.

[4] Játaka, p. 61, line 10.

[5] Játaka, p. 92, ll. 22, 26. At p. 94, l. 23, it is said that the ground was bought by covering it with kahápaṇas laid side by side. Compare above, § 5, and Childers' Dict. p. ix.

[6] Sahassaṁ: apud d'Alwis, Introduction to Kaccáyana's Grammar, p. 97.

[7] Turnour, J.B.A.S. vol. vi. p. 729. Mr. Thomas has pointed out this passage, Anc. Ind. Weights, p. 41, but it is not, as there stated, from the Mahávansa. The golden basin should be, I think, a bronze dish (kaṁsapáti). Comp. Mah. 15, last line.

[8] Mahávansa, Turnour's edition, p. 15, line 10. The Páli word is játarúpádikaṁ. Lassen, Indische Alterthumskunde, vol. ii. p. 84 (first edition); Köppen, Religion des Buddha, vol. i. p. 147; and Cunningham, Bhilsa Topes, p. 78, who all mention *coins*, derive their information from Turnour. With this notice the passage in Aṣoka's edicts should be compared, where he mentions the honouring of 'Theras' with gold as a virtuous act. (thairáṇaṁ hiraṇapaṭividhánaṁ. Bombay Journ. 1843, p. 257; J.R.A.S. xii. 199; Burnouf, Lotus, 757; Kern, Jaartelling, 58).

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of his order were not to receive gold or silver; but the original has simply 'gold, etc.,' though immediately afterwards it states that the mendicants even went so far as to call upon the laity to give them 'kahápaṇas.'

Further on in the Mahávansa a brahmin named Pandula gives Chitta's son 100,000;[1] King Dushṭa Gámaṇi (B.C. 161–137) gives a soldier 1000, and afterwards 10,000;[2] Wasabha, a nobleman in Dushṭa Gámaṇi's reign, gives another soldier 10,000;[3] Dushṭa Gámaṇi rewards a famous archer with a heap of kahápaṇas large enough to bury his arrow;[4] and when he builds the Maricawaṭṭi dágaba he makes presents valued at 100,000 and 1000, and spends altogether on that spot 19 koṭis, on the Brazen Palace 30 koṭis, on the Ruwanwæli Dágaba 1000 koṭis, and 100,000 on the sacred Bo-tree.[5] The same king rewards the architect of the Maháthúpa (now called the Ruwanwæli Dágaba) with a suit of clothes worth 1000, a splendid pair of slippers and 12,000 kárshápaṇas, and deposits 16 laks of kárshápaṇas for the workmen's wages.[6] He had previously deposited 32 laks of *hiraññas* for the wages of the workmen at the Lohaprásáda,[7] and he afterwards sends to a monk at Piyangala, among other things, two robes worth 1000, and the monk accepts them.[8] Dushṭa Gámaṇi's successor, Sardhá Tishya (B.C. 137–119), is said to have rebuilt the Brazen Palace at a cost of nine laks,[9] and his son and successor spent four laks for similar purposes.[10] King Mahánága, surnamed the Large-toothed (A.D. 9), spent six laks on the monks,[11] and the wife of the prime minister of Subha (A.D. 60) gives a youth named Vasabha 1000,[12] and he becoming king presents 1000 to the Mahávihára monastery, and land worth a lak to Abhayagiri, and his queen pays a lak for land on which to build another.[13] King Tissa (A.D. 209) gives 1000 monthly to the monks, and his successor gives them cloth of the value of two laks.[14] King Sangha Tissa (A.D. 242) put four gems worth a lak on the summit of the Ruwanwæli Dágaba,[15] and Jeṭṭha Tissa spent 16 millions on the Brazen Palace.[16] Under the reign of Mahasena (A.D. 284) occurs the phrase 'liable to a fine of a hundred';[17] and also the remarkable statement that that king gave to a thousand monks a theraváda worth 1000.[18] Meghavarṇa spends a lak in honour of the arrival of the Tooth-relic about A.D. 310.[19] Finally Dhatusena (A.D. 459)—in whose reign Mahánáma, the author of the Mahávansa, wrote—is recorded to have given 1000 in order to make the Dípavansa public,[20] and to have spent a lak on the sacred Bo-tree.[21]

19. Lastly, in the Mahávansa Tíká, a commentary on the Mahávansa written by the author himself, occurs the curious passage pointed out by Mr. Thomas,[22] where it is said that Chánakya, afterwards the minister of Chandra-gupta, but then, *circa* B.C. 330, a private individual, 'converted

[1] Páli sata-sahassaṁ, Mah. p. 61.
[2] Páli sahassaṁ and dasa-sahassaṁ, Mah. p. 139; 10, 11, 14. 140; 1, 3, 4. Dushṭa Gámaṇi is probably antedated about half a century, but this is of very little importance for our purpose.
[3] Dasasahassaṁ, Mah. 142, 9.
[4] Kahápaṇehi kaṇḍaṁ taṁ ásitto uparúpari
Chádápetvána dápesi Phussadevassa taṁ khaṇe.
—Mah. 157, 6.
[5] Mah. 160, 13; 161, 2; 165, 2, 6; 195, 8.
[6] Mah. 175, 7, 11.
[7] Mah. 163, 2.
[8] Mah. 177, 5.
[9] Mah. 200, 10.
[10] Mah. 201, 202.
[11] Mah. 214, 10.
[12] Mah. 219, 12.
[13] Mah. 223, 10, 14.
[14] Mah. 228, 6.
[15] Mah. 229, 4.
[16] Mah. 233, 10, 11.
[17] Mah. 234, 13 (Sataṁ daṇḍiyo).
[18] Mah. 237, 11. Comp. Childers' Dict. s.v. váda.
[19] Mah. 241, 13.
[20] Mah. 257, 14.
[21] Mah. 258, 10.
[22] Anc. Ind. Weights, p. 41; Turnour's Mahávansa, p. xl.

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(by recoining) each kahápaṇa into eight, and thus amassed 80 koṭis of kahápaṇas.' As all statements by Mahánáma regarding this early period must be used with the greatest caution, the passage can only be received as evidence, not of what Chánakya did, but of what Mahánáma thought likely. Even so, it is very striking. In the passage referred to on the next page (p. xli), it is probable that the Páli original for Turnour's expression 'a thousand kahápanas' was simply sahassaṁ, 'a thousand,' just as a koṭi and a lak are mentioned at the top of page xl.

20. Such works as were produced in Ceylon between the fifth and the twelfth century have been so far lost that no book now extant can be assigned with certainty to that period; but in a very ancient inscription at Mihintale, of which I made a copy, mention is made of an aka, *i.e.* aksha, of gold (the aksha being the same as the karsha), and of the kalanda, which is the same as the dharana, and equal to eight akas.[1] The inscription records a lengthy order made by King Siri Sang Bo for the regulation of the Temple property at Mihintale. There were several kings of that title, and the inscription is ascribed by Dr. Goldschmidt to Mahindu III. (A.D. 1012).

21. In addition to these notices from Ceylon literature, a passage of Pliny should be mentioned, where it is stated that a traveller in the reign of Claudius was carried over to Ceylon from the Persian Gulf by unfavourable winds. The King of the place where he landed, and which he calls Hippuros, seeing some of his Roman coins, was astonished that the denarii should weigh the same, although the different figures upon them showed that they were struck by different persons.[2] It is very doubtful where Hippuros may be; possibly it was in the north of the island, and the King would then be the Tamil ruler over those parts, the province of Jaffna having been at that time, and for long afterwards, an independent, though perhaps tributary State. If the exact motive for the King's astonishment has been accurately preserved in this very secondary evidence, the negative conclusion might be drawn that the art of coining was very little advanced about the commencement of our era in the neighbourhood of Hippuros; and perhaps the positive one that the people thereabouts used pieces of copper of unequal weights, and with various marks upon them, as a medium of exchange. This is not inconsistent with the notices in the Ceylon books, and may therefore be taken as confirmatory evidence; but much stress cannot be laid upon it, as our informant may have been misled. The motives of Indian rájas are by no means easily ascertained, even when they are speaking to people who understand their language. And the other details stated by Pliny are so evidently incorrect—he says, for instance, that the King's palace alone contained 200,000 people—that no reliance can be placed on the accuracy of his report.

[1] Clough says the kalanda is the weight of 24 mára seeds = 86 grains and a fraction.

[2] Pliny, Nat. Hist. vi. 24. Mirum in modum in auditis justitiam ille suspexit, quod pares pondere denarii essent in captivâ pecuniâ cum diversæ imagines indicarent a pluribus factos. Compare Lassen, Ind. Alt. vol. iii. p. 61; Priaulx, Indian Embassies to Rome, J.R.A.S. vol. xviii. p. 345. Prof. Lassen would identify Hippuros with Kudirei Malei, on the N.W. coast, a place Sinhalese at the time referred to, but whose present Tamil name means Horse Hill; Bochart identifies it (Geogr. Sacr. vol. i. p. 46) with Ophir, which Gen. Cunningham places at the mouth of the Indus (Ancient Geog. India, vol. i. p. 561); and Sir E. Tennent, for much less valid reasons, at Galle in Ceylon (vol. ii. p. 101). Of these I would prefer Lassen's opinion; for though Kudirei Malei may be a modern name, it may also be a translation of a more ancient one. But the point is as yet quite uncertain.

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22. We have thus derived enough data from the few fragments of Buddhist literature as yet published to render the hope reasonable that we shall hereafter, when the whole of it has become accessible, be able to decide most of the points at present doubtful regarding the coinage of Magadha in the time of the Piṭakas, and of Ceylon in the fifth century. At present we can only sum up as follows the facts ascertained and the conclusions deducible from them.

In the Northern Buddhist literature coins have only as yet been found mentioned in works of uncertain but very late date (§ 3). In the Southern Buddhist literature we have the *kahápaṇa* and the *páda*, i.e. 'quarter,' distinctly used in the Piṭakas themselves—though each only in one passage—as measures of value (§ 4, 5), and buying and selling by means of gold is mentioned (§ 7). In Kaccáyana's Grammar the word *kahápaṇa* is once used, apparently as the name of a weight; and the expression, 'bound for a hundred,' implies the existence of some well-known measure of value, which probably, though not conclusively, was the *kahápaṇa* (§ 9). In the Pátimokkha, besides a reference to transactions in which gold and silver are concerned (§ 11), we have the distinct mention of the *kaṁsa* or 'copper' as a measure of value (§ 12). In the fifth century commentaries we find the words *kahápaṇa* and *másaka*[1] (which originally meant a weight) explained as names for pieces of money on which images or figures were stamped or marked. Both are used in the Játakas and *sísa*, leaden piece, in the Játaka commentary, where *kahápaṇa* is used in a passage referring to the time of Gautama (§ 13–17). In the earlier portions of Mahánáma's history, where many of the statements are not trustworthy, the *kahápaṇa* and *hiraññha* are mentioned, and throughout his work there are references to a 'hundred,' a 'thousand,' a 'ten thousand,' a lak, and a koṭi (ten million), as if these were recognized weights or sums (§ 18). In the commentary on the same work similar expressions are used, and we are told that a private individual, converting each kahápaṇa into eight, amassed eighty koṭis (§ 19). We have, therefore, no evidence in Buddhist literature that in Magadha before the time of Aṣoka, or in Ceylon before the fifth century A.D., there were any coins proper, that is, pieces of inscribed money struck by authority. On the other hand we have no statements inconsistent with the existence of such coinage; and we have sufficient evidence that pieces of metal of certain weights, and probably marked or stamped by the persons who made them, were used as a medium of exchange; and that some common forms of this money had acquired recognized names. These results are substantially in accordance with the general course of Mr. Thomas's argument (*loc. cit.* pp. 32-44). 'True coins in our modern sense'[2] are not mentioned in any Indian work certainly pre-Buddhistic, but 'circulating monetary weights'[3] were in use long before. The oldest coins found in India, whose dates can be even approximately ascertained, are not older than the first century B.C., and were almost certainly struck in imitation of the Greeks.[4] Into the general question, however, I do not enter: my object has been a much humbler one, viz. to state clearly such evidence as to coins or money as is obtainable from the published Páli texts.

[1] Once called másа (§ 17). [2] Mr. Thomas, Ancient Indian Weights, p. 41. [3] Ibid. p. 36.
[4] But compare Mr. Thomas contra, Prinsep's Essays, vol. i. p. 222.

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PART II. Weights and Measures.

23. We shall group our notices of these in the form of a commentary on the statements of Moggallána, who, in the middle of the twelfth century, composed a Páli vocabulary called Abhidhánappadípiká, in imitation of the Amara Koṣa. In this work he gives various schemes of measures,[1] which contain valuable information, although it will, I think, be clear from the following pages that his tables cannot be entirely relied on as evidence of Indian or even of Ceylon usage. As it refers to the points we have just been discussing, we place first his

TABLE OF WEIGHTS.

2	Gunjá[2]	=	1	Mâsaka[3] (a seed of the *Phaseolus*).														
5	do.	=	**2½**	do.	=	1	Akkha (a seed of the *Terminalia Bellerica*) = karsha.											
40	do.	=	20	do.	=	**8**	do.	=	1	Dharana (= Sinhalese kalanda).								
200	do.	=	100	do.	=	40	do.	=	**5**	do.	=	1	Suvanna (gold).					
1,000	do.	=	500	do.	=	200	do.	=	25	do.	=	**5**	do.	=	1	Nikkha (an ornament for the neck).[4]		
400	do.	=	200	do.	=	80	do.	=	**10**	do.	=	2	do.	=	½	do.	=	1 Phala (fruit).
40,000	do.	=	20,000	do.	=	8,000	do.	=	1,000	do.	=	200	do.	=	50	do.	=	**100** do. = 1 Tulá (scale).
800,000	do.	=	400,000	do.	=	160,000	do.	=	20,000	do.	=	4,000	do.	=	1,000	do.	=	2,000 do. = **20** do. = 1 Bhára (load).

24. The thick-faced figures are the ones given by Moggallána, the others being calculated from them. On careful inspection it will be seen that we have here at least two tables, and the connexion between the two, which Moggallána establishes by making one phala=10 dharanas,[5] is probably fictitious; for as far as Nikkha the weights are applicable to substances of great value and small bulk, and the rest *vice versâ* to things of small value and greater bulk. It is incredible that hay and gold should have been measured by one scale. None of these words are used in the published Páli texts in the sense of definite weights, except perhaps phala (mention being made in the commentary on the Pátimokkha[6] of a phala of coral) and másaka, which word has been discussed above. The gunjá is another name for the rati, on which see Mr. Thomas's paper, p. 10–11. The whole of this table should be compared with those given by the Sanskrit authorities,[7] and by the Amara Kosha (Colebrooke, p. 241), from which it varies almost throughout. It is curious that Moggallána does not mention in the table the only measure of weight actually found in use, viz. the *Káca* or *Kája*, a pingo-load: that is, as much as a man can carry in two baskets suspended from a pole carried across his shoulders.[8]

[1] Verses 267–269, 194–187, 479–484.

[2] A seed of the *Abrus precatorius* = kákaṇiká, § 16.

[3] Hardy, Legends and Theories of the Buddhists, p. 4, speaks of Rishis who had 'no gold (not even as much as 4 massas, each of which is of the weight of 4 mára seeds),' but what plant is meant by mára does not appear either in Clough's or in the Petersburg Dictionary. Comp. above § 5 (at the end) and § 17.

[4] So used at Dhp., pp. 41, 367. Comp. Anc. Ind. W. p. 34.

[5] It is curious that in Manu's table, on the contrary, 10 phalas = one Dharana. See Anc. Ind. Weights, p. 20, note 4.

[6] Minayeff, p. 79, note on 8, 13; but the masculine gender is used, which Childers gives only in the sense of fruit. Moggallána makes the weight neuter.

[7] Colebrooke, Amara Kosa, p. 241, and Essays (ed. Cowell), pp. 529–532. Thomas, *loc. cit.* p. 13.

[8] Mah. 22, 27; Játaka, 9, 17; Ab. 525, 919.

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25. We pass on to Moggallána's scheme of the

MEASURES OF LENGTH.

36	Paramáṇus	=1	Anu.														
36	Aṇus	=1	Tajjári.														
36	Tajjáris	=1	Rathareṇu.														
36	Rathareṇus	=1	Likkhá.														
7	Likkhás	=1	Uká.														
7	Ukás	=1	Dhaññamása.														
7	Dhaññamásas	=1	Angula[1] (finger joint, inch).														
12	Angulas	=	1 Vidatthi (span).														
24	do.	=	**2**	do.	=	1 Ratana (cubit, forearm) = hattha[2] = kukku.											
168	do.	=	14	do.	=	**7**	do.	=	1 Yaṭṭhi (pole, walking stick).								
[672	do.	=	56	do.	=	**28**	do.	=	4	do.	=	1 Abbhantara (interval)].[3]					
3,360	do.	=	280	do.	=	140	do.	=	**20**	do.	=	5	do.	=	1 Usabha.[4]		
268,800	do.	=	22,400	do.	=	11,200	do.	=	1,600	do.	=	400	do.	=	**80**	do.	= 8 Gávuta (meadow).
1,075,200	do.	=	89,600	do.	=	44,800	do.	=	6,400	do.	=	1,600	do.	=	320	do.	= **4** do. = 1 Yojana.

Also at verses 197, 811, a *kosa* = 500 bow-lengths.[5]

26. Of these names none above *angula* have as yet been found in actual use as measures, and the same remark applies to *kukku*, *yaṭṭhi*, and *kosa*. Vidatthi (the span) has been found in the Pátimokkha, the rest occur only in the literature of the fifth century after Christ. The líksha occurs as a measure of weight in Mr. Thomas's table, p. 13, and most of the above names as measures of length in his table at p. 31, where Sanskrit calculations, greatly differing from the above Páli ones, will be found. Taking the vidatthi[6] or span at $8\frac{1}{2}$ to 9 inches, and the ratana[7] or cubit, (which should be measured from the elbow to the end of the *little* finger only, see § 30) at from 17 to 18 inches, the yojana, according to Moggallána's scale, would be equal to between 12 and $12\frac{1}{2}$ miles, and this is the length given by Childers; but I think it is certain that no such scale as Moggallána here gives was ever practically used in Ceylon. The finger joint, span, and cubit, may have been used for short lengths; the usabha for longer ones; the gávuta and yojana for paths or roads; but I doubt whether any attempt was made in practice to bring these different measures into one scheme.

27. In trying to draw up such schemes, Moggallána has been compelled to make arbitrary assumptions, and to put in imaginary measures, to which he has given the names he found in the Sanskrit lexicographers, without troubling himself much whether he changed their relative values or not. As regards the larger measures of length, I have noted the following few passages; it is only from a comparison of lists of such passages, making them as complete and accurate as possible, and allowing due weight to the various ages and countries of the authors, that a trustworthy estimate can be formed of the sense in which these measures were really used.

[1] See Dhammapada (ed. Fausböll), pp. 319–21; Pátimokkha (ed. Minayeff), pp. 76, 78, 81, 16; Mahávamsa (ed. Turnour), p. 169.

[2] This is the usual word. See *e.g.* Dhp., p. 168, Mahávamsa, pp. 141 and 257, line 7, and Ját. pp. 34–44.

[3] This is inserted from verse 197.

[4] Usabha is used in the Mahávansa, pp. 133, 153, and in the commentary quoted by Alwis, Intr. p. 79. The river Anomá, at the place where Gautama cut off his hair, is said at Játaka, p. 64, line 22, to be 8 usabhas, and in the Manual of Buddhism, p. 161, to be 800 cubits, broad. Compare Big. p. 212.

[5] Compare Mr. Thomas's Essay, p. 32, and the Appendix to Cunningham's Ancient Geography of India, vol. i.

[6] The 'Buddha's span' (Pátimokkha, iv. 6; vii. 87–92) was longer.

[7] Sanskrit *aratni*. Only found in this sense in a commentary quoted by Alwis, Introduction to Kaccáyana's Pali Grammar, p. 76, line 21, and at Játaka, p. 7.

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TABULATED STATEMENT OF PASSAGES ON THE LENGTH OF THE YOJANA.

Names of Places.	Distance according to Buddhist text.	Direct distance on modern maps in miles.	No. of miles in a yojana.[1]	Authorities.
1. Benares to Uruvela	18 yojanas.	128	8	Játaka, p. 68, l. 5, p. 81, l. 24; Big. pp. 51, 74; Hardy, Man. B., p. 184.[2]
2. do. ,, Takshila.....	120 do.	850	7½	Játaka, 395; comp. Dhp. 384.
3. Kapilavastu ,, The River Anomá	6 do.	40–45	?8	Gya Tchér Rol Pa, p. 214.
4. do. ,, do.	30 do.	do.	?	Játaka, p. 64, line 16; Big., p. 41; Hardy, M. B., p. 161.
5. The River Anomá ,, Rájagriha	30 do.	?	?	Játaka, p. 66, line 1; Big., p. 44; Hardy, M. B., p. 162.
6. Nálanda ,, do.	1 do.	8	8	Turnour, J.B.A.S. vii. 998.
7. Kapilavastu ,, do.	60 do.	210	?4	Játaka, p. 87, line 16; Big., p. 116; Hardy, M. B., p. 199.
8. Kusinagara ,, do.	25 do.	150	7	Bigandet, p. 212.
9. Śrávasti ,, do.	45 do.	275	7	Játaka, p. 92, line 20; Big., p. 126; Hardy, M. B., p. 218.[3]
10. The Ganges ,, do.	5 do.	35	8	Hardy, M. B., p. 237.
11. do. ,, Vaiśáli	3 do.	24	8½	,, ,,
12. Śrávasti ,, do.	54 do.	225	6	,, p. 282.
13. Kapilavastu ,, do.	49–51 do.	160	?4	,, p. 310; 341.
14. Śrávasti ,, Álavaka	30 do.	?	?	,, p. 261.
15. Áloka ,, do.	3 do.	do.	?	,, p. 262.
16. Patna ,, Rakshita	100 do.	?	?	Ib. p. 515, from Milinda Paṇha.
17. do. ,, The Bo-Tree	7 do.	60	8½	Mahávansa, p. 111.
18. Ságala ,, Kashmír	12 do.	100–180	?	Milinda Paṇha, Alwis, Intro. p. xliii., Hardy, M B., p. 516.
19. do. ,, Alexandria	200 do.	88 *or* 260 *or* 360	?	Milinda Paṇha, do.
20. Sankassa ,, Śrávasti	30 do.	?	?	Hardy, M.B. p. 300; Bigandet, p. 213.
21. do. ,, Madhurá	4 do.	?	?	Kaccáyana (Senart, p. 129).[4]
22. Rájagriha ,, Laṭṭhivana	3 gávutas.	?	?	Hardy, M.B. 191. Big. 142. Ját. 84, 6.
23. The Bo-Tree ,, Yosisa	do.	?	?	Bigandet, p. 74.
24. Kusinagara ,, Páwá	do.	?	?	Big., p. 174; Hardy, M. B., p. 344.
25. Anurádhapura ,, {The Maháwæli gangá,} { at the Kaccaka ferry}	9 yojanas.	70	9	Mahávansa, p. 139.
26. do. ,, do. at Tambapiṭṭhi..	7 do.	50	8	,, p. 166.
27. do. ,, Áćárawiṭṭhi-gáma	3 do.	?	?	,, p. 166.
28. do. ,, Sumana-vápi	4 do.	do.	?	,, p. 166.
29. do. ,, The Ridi Wihára	8 do.	54	7¾	,, p. 167.
30. do. ,, Adam's Peak	15 do.	100	7½	Beal's Fa Hian, p. 150.

28. Disregarding the cases in which Kapilavastu is mentioned—concerning the site of which place there is still some doubt—the average of the list is rather less than eight miles to the yojana. What is of more importance, a careful consideration of those data which are most certain leads to a similar result. Among these the two last are the most important. Fa Hian visited Anurádhapura

[1] In each case about one-sixth has been added to allow for the difference between the direct distance and the distance by roads or paths.

[2] Spence Hardy here and usually has translated the distances into miles, reckoning the yojana at 16 miles; see p. 160, where 480 miles in one sentence = 30 yojanas in the next; and see also p. 199. Beal, pp. 245, 246, gives the names of places on the way between these two towns, but compare Bigandet, *loc. cit.*

[3] The places on the route are given by Hardy, M. B., p. 335.

[4] This distance is quite inconsistent with Cunningham's identification of Sankassa, Ancient Geog. p. 369, with which, however, No. 20 agrees.

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about 413 A.D., when Mahánáma, the author of the Mahávansa, must have been still a lad. As he did not himself visit Adam's Peak, his statement that it was fifteen yojanas from Anurádhapura must have been derived from the monks there, and—there being no doubt as to the actual distance—is very good evidence of the value they attached to the word. Still more trustworthy is the conclusion to be drawn from No. 29. The Ambalaṭṭhi-kola Lena mentioned by Mahánáma is well known to be the site of the still-celebrated Ridi Wihára in the Kurunægala district,[1] and its distance from Anurádhapura must have been well known to the monks at the latter place; the path from one to the other lay through the then most populous part of Ceylon, and is perfectly easy. In No. 19 we have to choose between four different Alexandrias, not one of which at all agrees with the distance given:[2] and as regards No. 18, on which Childers lays so much stress, though General Cunningham has fixed the site of Ságala without doubt, "Kashmír" seems to me to be a very vague term. Nothing is known of the date of the author of Milinda Paṇha, in which the statement is found, or of the sources of his information; and the boundary of Kashmír was constantly extending and contracting in the direction of Ságala. It is true that the seat of government was usually fixed at about the same place, namely, at and near Śrí Nagara; but as this is 180–190 miles from Ságala, the yojana would then equal about 17½ miles, which is so highly unlikely to have been intended, that we may safely reject the interpretation. In No. 1 the distance given in the books is not from Benares itself, but from the Migadaya garden near it, where Gautama preached his first sermon, and which probably lay, according to Cunningham, about half a yojana to the north of the town.

29. The conclusion to which I come is that we have no data as yet for determining the sense in which the word yojana is used in the Three Piṭakas; that in the fifth-century Páli literature it means between seven and eight miles,[3] and that the traditions preserved by Ceylon authors of that date as to distances in North India in the time of Gautama agree pretty well, except in the cases of Kapilavastu and Sankassa, with the sites fixed by General Cunningham.

30. Moggallána[4] further gives *tála*, *gokaṇṇa* and *padesa* as names of a short span; but in the only passage given by Childers where tála (which means palmyra-tree) is used to express length, it means "the height of a palm-tree." The other words have not been found in the texts. I presume Moggallána means the three words to express the length when the hand is extended from the end of the thumb to the ends of the three centre figures respectively, *vidatthi* being the name for the ordinary span to the end of the fourth or little finger. Finally, Moggallána gives[5] *Vyáma* as the length a man can stretch with both arms, that is, a fathom; and *Porisa* (literally manliness) as the length a man can reach up to when his arms are held over his head. The latter does not seem to have been in actual use; on the other hand *yuga*, a yoke, is used to

[1] See Turnour in the Index s.v., and compare Mahávansa, p. 167, with da Zoysa's account of Ridi Wihára in his Report on Temple Libraries, 1875.

[2] For Alexandria Opiane see Cunningham's Ancient Geography of India, vol. i. p. 24, and for the three others do. Map V. p. 104.

[3] As when Professor Childers, in his Dictionary, s.v., looks upon the yojana "as about equivalent to twelve miles," he is following Moggallána, though he especially instances No. 16, so also when the Burmese make it = 13½ miles (teste Rogers, Bud. Par. p. 42), this probably rests on some similar calculation.

[4] Verse 267. They are also given in the Amara Kosha, 2, 6, 2, 34.

[5] Verse 269; and see Childers, s.v.

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express length, and Spence Hardy renders it the distance of a plough or nine spans[1] (*i.e.* 6-7 feet); and *hatthapásaoc* curs (Pátimokkha, Dickson, p. 11; Kankhá Vitaraní, Minayeff, p. 98) in the sense of $2\frac{1}{2}$ cubits.

31. At the end of his scheme of measures of length, Moggallána states that a *karísa* is equal to four ammaṇas (a superficial measure). *Karísa* seems to have been the measure of extent really in use in Ceylon in the fifth century; it is used quite independently of ammaṇa (which does not occur as a measure of extent till much later). Eight *karísas* are mentioned in the Mahávansa, p. 221, l. 40, in the commentaries to the Dhammapada (p. 135), and to the Játaka (p. 94, l. 24); sixteen *karísas* in the Mahávansa (p. 166), and in the Játaka commentary (p. 94, l. 22); and again one hundred *karísas* in the Mahávansa, p. 61. None of these passages give any clue to its size; but if the tradition preserved by Moggallána be correct, it would be equal to about four acres. Like all other Ceylon measures of extent, it is derived, not from any measure of length, but from a measure of capacity, the Tamil karísu, explained by Winslow to be a dry measure equal to four hundred marakkáls, or according to some equal to two hundred paras. It was not till after the arrival of the Europeans that the Sinhalese had any exact measure of extent: they *always measured land by the quantity of seed which could be sown in it;* and the peasantry do so still in practice, although in some of the more advanced districts they occasionally use English measures in their legal documents. One result of their mode of measurement is that each measure varies according to the nature of the ground, and the kind of seed used. Thus a páela[2] of land on very dry soil, where rice will not grow, or on a hill-side, where the seed has to be sown very sparsely, is larger than a páela of muddy or low land, where the ordinary rice will grow very thickly. To add to the confusion, the dry measures of capacity differ in different districts, not only different names being generally used, but the same name in different senses.[3]

32. This was doubtless the case also in the twelfth century, when Moggallána drew up the following table of

MEASURES OF CAPACITY.

4	{Pasata (handfuls)[4] or Kuḍuba*}	=	1 Pattha or Náḷi.															
16	do.	=	**4**	do.	=	1	{Aḷhaka or Tumba.*											
64	do.	=	16	do.	=	**4**	do.	=	1 Doṇa.									
256	do.	=	64	do.	=	16	do.	=	**4**	do.	=	1 Máṇiká.*						
1024	do.	=	256	do.	=	64	do.	=	16	do.	=	**4**	do.	=	1 Khárí.*			
20480	do.	=	5120	do.	=	1280	do.	=	320	do.	=	80	do.	=	**20**	do.	=	1 {Váha (horse load), Sakaṭa (cart load).

Also **11** Doṇa = 1 Ammaṇa, and **10** Ammaṇa = 1 Kumbha.*

33. Of these none of those marked * are used in the sense of a measure in the published texts, unless the statement in Kaccáyana (Senart, p. 155) that a *doṇa* is less than a khárí can be

[1] Manual Buddh. p. 371; comp. Dickson, Pátimokkha, p. 59.

[2] The æ to be pronounced like French è in *mère*.

[3] Clough, in his Dictionary, says 5 kurunis or yálas = 1 parrah; 12 kurunis = 1 páela; and 8 parrahs or 160 measures = 1 amuna. I have usually found that 40 láhas were = 1 páela, and 4 páelas = 1 amuna (Páli ammaṇa), which was in rice-fields equal to about two acres. Compare on this mode of measuring extent, Thomas, Ancient Indian Weights, p. 31, note; and Colebrooke, Miscellaneous Essays, vol. ii. p. 245.

[4] Pasata is really the cavity formed by bending the palm of one hand; that formed by joining the two hands is called karaputa, or añjali. See Abh. 286 and Mah. 37.

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considered as an example of the use of khárí; but curiously enough *khárí* occurs at Játaka, p. 9, lines 15, 24 as a measure of weight. Moggallána follows the current Sanskrit tables except in the data regarding the váha, ammaṇa, and kumbha; and in the omission of the measures less than the pasata, by which the Sanskrit tables establish an artificial connexion between this table and the tables of weight.[1] The ammaṇa (Sinhalese amuṇa, Tamil ambana) now varies in different parts of Ceylon from five to seven bushels and a half. In the Mahávansa, pp. 174, 157, an ammaṇa of sand is mentioned; at Ját. 33 an ammaṇa of kahápaṇas; and at Játaka, p. 62, line 15, we are told of a mattrass made of an ammaṇa of jasmine and other flowers.

34. In the commentary on the Pátimokkha[2] occurs the following interesting passage: 'There are three kinds of begging bowls—the high bowl, the middle bowl, and the low bowl. The high bowl takes half an *áḷhaka* of boiled rice (or the fourth of that quantity of uncooked rice) and a suitable supply of curry: the middle bowl takes a *náḷiká*[3] of boiled rice (or the fourth of that quantity of uncooked rice) and a suitable supply of curry: the low bowl takes a *pattha* of boiled rice (or the fourth of that quantity of uncooked rice) and a suitable supply of curry. From some places the high bowl cannot be procured, from others the low bowl. In this passage 'three kinds of bowls' means three sizes of bowls; 'takes half an áḷhaka of boiled rice' means takes the boiled food made from two náḷis of dry rice of the Magadha náḷi. In the Andha Commentary[4] a Magadha náḷi is said to be 13½ handfuls (*pasatas*). The náḷi in use in the island of Ceylon is larger than the Tamil one. The Magadha náḷi is the right measure. It is said in the Great Commentary that one Sinhalese náḷi is equal to 1½ of this Magadha náḷi.' It is clear from the above passage that Moggallána's scheme, in which the pattha is made the same as the náḷi, will not apply to the fifth-century books. The náḷi was a liquid as well as a dry measure, for a náḷi of oil is mentioned at Mahávansa, p. 177, l. 6, and a náḷi of honey at Mahávansa, p. 197, l. 1. At Játaka, p. 98, l. 5, Gautama tells a householder to listen, giving ear attentively, as if he were filling a golden náḷi with lion's marrow! The original meaning of the word is *pipe* or *reed*, then the joint of a bambú, and hence the measure, either dry or liquid, which such a joint would contain; or, as a measure of extent, the space over which the seed contained in such a measure could be sown.[5] As the size of different bambus differed, we can understand the origin of the difference in the size of the measures. In Sanskrit, though neither náḍi nor náḷi have acquired the meaning of a measure of capacity, náḍi is given in the Koṣas as a measure of time.[6] The corresponding measure of capacity in Sanskrit is prastha, to which in the Petersburg Dictionary many different values are assigned, *inter alia* that of four Kudavas; and it is curious to notice that Colebrooke (Essays, vol. ii. p. 535) mentions a 'Magadha prastha,' which the Tibetans also use (Táranátha, p. 35). The Sinhalese word is næḷiya,[7] which Clough explains as 'three pints, wine measure:' the Tamil is

[1] See Thomas, *loc. cit.* p. 26, and Colebrooke, Amara Kosha, p. 242, where 20 Droṇas = 1 Kumbha; and 10 Kumbha (*i.e.* 200 and not 320 Doṇa) = 1 Váha. Compare Colebrooke's Essays, vol. ii. pp. 533-538.

[2] Minayeff, p. 81 on 10, 19.

[3] This of course is the same as náḷi. See Játaka, pp. 124–126.

[4] See Minayeff's Pátimokkha, p. viii. note 11, and Wijesinha's paper on the origin of the Buddhist Commentaries, in the Journal of the Royal Asiatic Society for 1871, p. 10 (of the separate edition).

[5] Comp. Wilson, Glossary, s.v., and Traill's Report on Kumãon, As. Res. xiv.

[6] At Mahávansa, p. 227, last line, kuntanáḷi seems to mean the handle, or perhaps sheath, of a spear or dagger.

[7] The æ pronounced like *a* in *hat*.

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náḷi, which Winslow explains as the eighth part of a kurundi or marakkál. Finally, in the inscription referred to above (§ 20), *yála*, *kiriya*, and *paya* are used as measures of extent; the kiriya being four ammaṇas: and *næḷiya*, *aḍamaná*, and *pata* are used as measures of capacity; the pata being the same as pasata, a handful, and stated by Clough to be the eighth of a seer, that is, the 256th part of a bushel, while the aḍamaná is probably another name for the náḷi.

PART III.

Sketch of the History of Ceylon under those Kings whose Coins are extant.[1]

35. About five centuries before Christ the island of Ceylon was colonized by Aryan settlers from Orissa. On their arrival they found the country inhabited by a people whom in their histories they called Yakshas or devils, and who were probably of Draviḍian race, although their nationality has not yet been, and probably never will be, ascertained with certainty.[2] The island was converted to Buddhism in the middle of the third century B.C. by Mahendra, the son of Aṣoka the Great; but was very soon afterwards invaded by the Tamils, who held the whole of the Northern plains for more than half a century. From that time down to the fourteenth century the history of Ceylon is the history of the struggles of the Aryan islanders to hold their own against the ever-increasing numbers of the Draviḍian hordes. Twelve times the Tamils became masters of the plains, and twelve times the Sinhalese issued forth again from their mountain strongholds and drove their enemies back across the sea. But each victory left the victors weaker than before. They felt they were fighting against overwhelming odds, and gradually withdrew the seat of government further and further south, until the long struggle was terminated at last by the devastation of the country; and the rich plains from the peninsula of Jaffna in the extreme North to the Northerly spurs of the Central hills relapsed into their present state of almost deserted jungle.

36. In the last years of the tenth century the Cholians had been obliged to quit the island; but in the year 1050 they again invaded Ceylon, and though the King had fled to the hills in the South, they captured him and his Queen, and carried them prisoners to the peninsula. As soon as they turned their backs, the mountaineers, as usual, reasserted their independence; and while the plains were governed by the Cholian viceroy, the hills were ruled by a son of the captured King named Káṣyapa. The King died in captivity, but his son immediately proclaimed himself Rája of Ceylon, and was making great preparations to expel the Cholians, when he was taken ill and died. Always dependent on a visible head, the Sinhalese were at once thrown into disorder. The young son of Káṣyapa was proclaimed King, and his advisers sent for help to Siam—not altogether without

[1] The authorities are: Turnour's Epitome of the History of Ceylon, and his Mahávansa, pp. lxiv–lxvii and lxxxvi–lxxxix; Lassen's Indische Alterthumskunde, vol. iv. pp. 309–336, for which Lassen has used a MS. of the Mahávansa; and my articles, 'On the Invasion of South India by Parákrama the Great,' in the Journ. Bengal As. Soc., vol. xli. part 1, 1872; 'On the Audience Hall Inscription' in the Indian Antiquary for Sept., 1873, and 'On Sinhalese Inscriptions' in the Journ. Royal As. Soc. for 1874 and 1875. For the period subsequent to Parákrama's death I have also consulted the MS. of the Mahávansa in the India Office.

[2] It has been usual to consider the Wæddas, a tribe of savages still existing in the South-west jungles of Ceylon, as the descendants of these aborigines. If this be so, they were possibly the descendants of former Aryan colonists, but the language of the Wæddas has not yet been thoroughly investigated. Mr. B. F. Hartshorne, late of the Ceylon Civil Service, has stated all that is known of this curious tribe in an interesting article in the *Fortnightly Review* of January last.

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success; but the central power was too weak to gain hearty allegiance; the clans retired to their valleys; and for a time the national cause seemed to be forgotten, whilst the members of the royal family were engaged in schemes against each other. At last the rivalry broke out in open revolt, and two chiefs, near relations of the young King WIJAYA-BÁHU, proclaimed war against him. The danger of the crisis showed that Wijaya-báhu had inherited his father's martial vigour. He himself took the field, and completely defeated the insurgents; and at the first news of the victory, the clans flocked to his standard. Then ensued a protracted and desultory warfare, which did not end till the Cholians were completely driven out of the island. The King established his Court at Pulastipura, and spent the last ten years of his long reign in endeavours to restore the irrigation works on which depended the prosperity of the country, and which had fallen into decay under the rule of the Malabars.

37. But the unfortunate country was not to taste the blessings of peace. Immediately on the death of the King, the members of the royal family, who thought only of their own interests, began to quarrel for the possession of the throne, and for twenty-two years the island was desolated by a civil war of the most ruthless and determined kind. At length PARÁKRAMA BÁHU (1153), a nephew of the late King, after a long struggle with his uncles, and a short but bitter and furious war against his own father, was able to crown himself King of all Ceylon, and enjoy the sweet sense of undisputed power. He was not long in showing that that power would be used to a degree to which it had never been used before. He strongly fortified his capital Pulastipura, the modern Topáwa, built a splendid palace seven stories high for himself, and two others five stories high for priests and devotees. Then he laid out a park near his palace, and built in it a hall for the coronation of kings, and near it a brick temple, which he called the Jetawanáráma.[1] At the other end of the town he constructed also a splendid stone temple for the worship of the Buddha—a building which, carved out of the solid rock, is, even in its ruins, a lasting memorial of the skill and taste of the workmen he employed. In a few years he had succeeded, partly by taxation, partly by compulsory labour, in making Pulastipura one of the strongest and most beautiful cities in India; and he succeeded also in rousing into rebellion a nation always distinguished for its wondrous patience under the oppression of its kings.[2] The insurrection was put down after a protracted struggle, causing great destruction of life and property, and a severe example was made among the insurgents, the leaders being impaled, beheaded and otherwise punished. Once more unrivalled at home, this able and ambitious despot now turned his victorious arms against the Kings of Kámboja and Rámánya,[3] undeterred by the enormous risk and difficulty of sending a fleet of transports 1500 miles from home to the further side of the open Bay of Bengal. It may well be doubted whether any other monarch in Europe or Asia would at that time have conceived so daring an idea, or, if he had, could have carried it to a successful issue. The Crusaders carried their arms about as far;

[1] By the kind permission of Mr. Fergusson I have been allowed to place at the beginning of this monograph the woodcut of this temple, which originally appeared in Sir E. Tennent's Ceylon. Since the drawing from which it was taken was made, the entrance was excavated for Government under my superintendence, and was found to be richly carved in bas-relief.

[2] It seems probable, from the headings of the chapters of the Mahávansa relating to this period, that some of the disappointed members of the royal family took advantage of the general discontent to incite the people to revolt.

[3] *i.e.* Burma; and more especially its coast provinces referred to in Aṣoka's edicts as *Suvaṇṇa-bhúmi*. Comp. Bigandet, p. 389.

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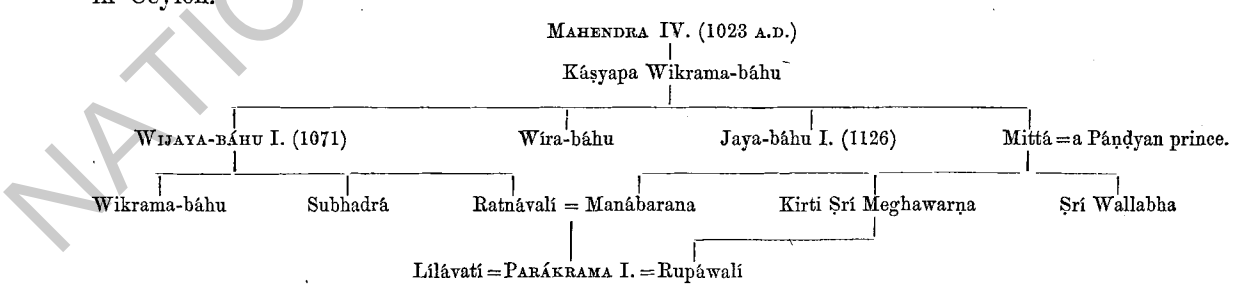
but they either marched through countries for the most part friendly, or sailed along the Mediterranean, whose numerous islands could afford them food and shelter: and though they accomplished much which they did not intend, they failed in the object they proposed. About 1175 A.D. the Sinhalese fleet arrived safely at its destination, and completely conquered Kákadvípa and Rámánya, taking the Kings of those countries, with their ministers, prisoners. The latter was restored to his throne on the monks interceding for him and on his making full submission; but the King of Kákadvípa died in captivity in Ceylon.

38. Soon afterwards the Páṇḍian King Parákrama, of the city of Madura, appealed to his Sinhalese namesake for help against his suzerain Kulasekhara, who was preparing to attack him. The flattering request was received with favour, and a Sinhalese army was sent to invade and lay waste the territories of Kulasekhara, that King being taken prisoner, and his son Vírapáṇḍu raised to the throne as a vassal of Parákrama Báhu. About 1180 the troops advanced also against Chola, and after an obstinate war took and destroyed the strongly fortified capital Amarávatí, and then returned to Ceylon rich with booty and tribute. Meanwhile the King at home had been still further adding to the religious and royal buildings at his capital, and had undertaken some of the largest and most difficult engineering works which the mind of man had then conceived. He constructed inland lakes ten, twenty, even forty miles round (one of them called 'the Sea of Parákrama'), fed from the principal rivers of Ceylon by broad and deep canals, which also united these lakes to one another and to the principal towns, whilst smaller canals conducted their waters to extensive and fertile tracts of arable land. It may perhaps be doubtful whether all of these works were worth the immense labour which they must have cost; but as the labour was probably compulsory, whilst a tax in kind of one-tenth of the produce was certainly levied on all the irrigated land, the schemes no doubt benefited the royal exchequer, while they threw additional glory on the royal name. Parákrama died in 1186, after a reign of thirty-three years—'the most martial, enterprising and glorious,' says Turnour, 'in Sinhalese history'; he had earned for himself undying fame, and had so exhausted and impoverished the country that it was long before it began to recover from the effects of his daring ambition.

39. The following table will show the relationship of Parákrama to his different rivals in Ceylon.



40. Parákrama was succeeded by his nephew Wijaya Báhu (1186), whose character seems to have been a curious mixture. He is celebrated in the priestly chronicles as a most religious prince,

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who himself wrote letters in the sacred language to exhort the King of Rámánya to aid him in extending the faith, and who took great pains to administer impartial justice, and relieved the people from the oppressions under which they had been suffering under his predecessor. But it was an intrigue with a farmer's daughter named Dípaní which led to his being murdered, after a reign of only one year, by a Kálingan named Mahinda.

41. The throne was then seized by the crown prince (uparaja) NIṢṢANKA MALLA (1187), a relation of Parákrama's Queen Lílávatí, and a son of Rája Jayagopa of Kalinga. The Mahávansa, after describing at great length in eighteen chapters the striking acts of Parákrama, unfortunately dismisses the next sixteen kings in one short chapter, and the deficiency is only partly made up by the interesting inscriptions referred to in the note at the commencement of this historical sketch. It appears from these inscriptions that Nissanka Malla was a quiet and patriotic, if not very vigorous or wise prince, who devoted the nine short years of his reign to internal reforms. He visited all parts of the island, and boasted that 'such was the security which he established, that even a woman might pass through the land with a precious gem and not be asked, "What is it?"'[1] The means by which he accomplished this may not have been so foolish as at first sight it appears. 'He put down robbery,' says the Ruwanwæli Inscription, 'by relieving—through gifts of cattle and fields and gold and silver and money[2] and pearls and jewelry and clothes, as each one desired—the anxiety of the people, who, impoverished and oppressed by the very severe taxations of Parákrama Báhu the First (which exceeded those customary by former kings), lived by robbery: for, thought he, they wish to steal only because they desire to live.' He further claims to have reduced taxation, remitting entirely one tax—that on hill paddy—which was felt as a particular hardship, and at the same time to have greatly improved internal communication, repairing the roads and putting up rest-houses along them for the use of travellers. 'Removing far away the fear of poverty and the fear of thieves and the fear of oppression, he made every one in the island of Lanká happy.' But he lavished enormous sums on the priests. He is said, in one Inscription, to have spent seven laks on the Cave Temple at Dambulla, and forty laks on the Ruwanwæli Dágaba at Anurádhapura;[3] and though these amounts are certainly exaggerated (another of his own inscriptions giving them as one and seven laks), he is known to have built the huge Rankot Dágaba at Pulastipura, and the exquisite stone temple of the Tooth at the same place, certainly the most beautiful, though one of the smallest ancient temples in Ceylon.

42. His son Wírabáhu was killed on the day of his accession, and his brother Wikrama Báhu, who succeeded, suffered the same fate three months afterwards, at the hands of his son or nephew COḌAGANGA (1196), who, after a short reign of nine months, was dethroned and blinded by the minister Kirti. The minister then married LÍLÁWATÍ, the widow of Parákrama, and ruled the

[1] Hallam in his 'Middle Ages,' vol. ii. p. 312, quotes from the Saxon Chronicler that in the time of William the Conqueror 'a girl laden with gold might have passed safely through the kingdom.' And Tennyson makes Harold say to the Earl of Porthieu:

'In mine earldom
A man may hang gold bracelets on a bush,
And leave them for a year, and coming back
Find them again.'

[2] *masu ran*, i.e. gold másakas.

[3] Forbes's Ceylon, vol. ii. p. 347.

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country in her name for the next three years. They were in their turn overthrown by another minister Aṇikanga, who first placed SÁHASA MALLA, another son (but by a different queen) of Rája Jayagopa, of Kalinga, on the throne,[1] but deposed and banished him after two years, and then reigned for six years in the name of KALYÁNAWATÍ, the widow of Nissanka Malla. Her son (?) DHARMÁSOKA DEVA, a babe of three months old, was the next puppet king, but after governing in his name for a year, Aṇikanga, relying on the help of Cholian mercenaries, put him to death, and openly declared himself King. But he had gone too far. Another revolution or palace intrigue immediately took place: after a few days he was captured and killed, and Líláwatí was restored to the throne. But before she had enjoyed her recovered dignity for a year, another insurrection broke out, which ended, twenty-eight months after her restoration, by a Páṇḍian prince named PARÁKRAMA (1211) attaining supreme power. He also was not long left in peace. A new invasion—this time from Kalinga[2]—took place, and a barbarian prince named MÁGHA (1214) overran the island, pillaging and destroying the temples and oppressing the people.

43. After tyrannizing over the unhappy country for twenty-one years, this despot was attacked by a young chief named Wijaya-báhu, who rallied round his standard the brave mountaineers —always the last to be subdued, and the first to revolt.[3] In a desperate struggle, which lasted three years,[4] they regained from their oppressors first the mountain districts, then the plains of Ruhuna in the South, and at last the capital Pulastipura and the plains of the North.[5] But the latter city had been completely ruined, and when the patriot chief was crowned King of all Ceylon, under the title of WIJAYA BÁHU III., in 1235, he removed the seat of government to Dambadenia, at the foot of the Kandian hills in the district now called Kurunægala.

44. In his long reign of twenty-four years this patriotic ruler so strengthened the country that when the hereditary foes of Ceylon again invaded the island, in the time of his son PAṆḌITA PARÁKRAMA (1259), they met with a signal defeat. Both these monarchs were great patrons of literature; and the latter especially, who was himself a voluminous writer, took great pains to restore the sacred books, many of which had been destroyed in the time of Mágha, and caused the chronicles of the island to be completed down to his reign. His son WIJAYA BÁHU IV. returned to the ill-omened city of Pulastipura, and there, after he had reigned only two years, was murdered by his prime minister, Mitra Sena. But the latter did not live to reap the fruits of his treason. He was himself assassinated shortly after, and BHUWANAIKA BÁHU, the last of the kings whose coins are extant, succeeded to the vacant throne in 1296.

[1] The date of this event (1743 Anno Buddhæ = 1200 A.D.) is fixed by an inscription I have published in the Journal of the R.A.S. 1875, in an article entitled 'Two Sinhalese Inscriptions.' This is the oldest inscription but one as yet known in which Buddha-warsha, the era of Buddha, is mentioned; comp. § 84 below.

[2] Also called Kerala in the 80th chapter of the Mahávansa, verses 61, 76, of the India Office MS.

[3] That this Wijaya-báhu was not related to any of the preceding kings, is proved by the fact that he based his claim to the throne on his descent from Sanga Bo, a popular Sinhalese hero and Buddhist martyr, who reigned from A.D. 238–240. So Dhátusena, who expelled the Páṇḍian usurpers in the fifth century, claimed descent from Yaṭṭhála Tissa, who reigned in the first. Mah. pp. 218, 254.

[4] Lassen, *l.c.*, p. 337, note, thinks this should be seven years.

[5] When excavating at Pulastipura, I found at the ruined gate of the palace a fallen slab covered with an inscription of Nissanka Malla. Under it was an old spear-head, which must have been used, at the latest, at this last siege of the ill-fated town, whose glory lasted so short a time.

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45. List of the Kings of Ceylon from 1153–1296 A.D.

1. Parákrama Báhu*	1153	
2. Wijaya Báhu II.*	1186	Nephew of last.
3. Niṣṣanka Malla*	1187	A prince of Kalinga.
4. Wikrama Báhu II.	1196	Brother of Niṣṣanka Malla.
5. Coḍaganga*	1196	Nephew of Niṣṣanka Malla.
6. Líláwatí* (queen)	1197	Widow of Parákrama Báhu.
7. Sáhasa Malla*	1200	Brother (?) of Niṣṣanka Malla.
8. Kalyánawati (queen)	1202	Widow of Niṣṣanka Malla.
9. Dharmáṣoka*	1208	
10. Líláwatí (restored)	1209	
11. Páṇḍi Parákrama Báhu	1211	Malabar usurper.
12. Mágha	1214	A Kálingan prince.
13. Dambadeniya Wijaya Báhu	1235	Founder of a new dynasty.
14. Dambadeniya Parákrama	1259	Son of the last king.
15. Bosat Wijaya Báhu	1294	Son of the last king.
16. Bhunaweka Báhu*	1296	Brother of the last king.

* Coins are extant of those monarchs marked with a star.

PART IV. Description of the Coins.

Coins of Parákrama Báhu, 1153–1186 A.D.

46. *The Lankeṣwara gold coin*, Figs. 1, 2, 3, 4.

On the obverse a standing figure of the king; turning towards the right; in his left hand a lotus-flower, of which Fig. 3 gives a front view, the others a side view; in his right hand apparently a weapon of some kind,[1] figured most clearly in Fig. 4. To the left of this is another symbol, appearing most clearly in Fig. 4, the meaning of which I do not understand (? a sceptre). The figure stands on the stalk of a lotus terminating in a flower to its left; between this flower and the left hand are five dots surrounded by small circles, which again I take to be lotus-flowers. Fig. 3 has only four of these. The dhoti or cloth wrapped round the loins falls in folds on each side of and between the legs.[2] On the head of the figure is a conical cap.

On the reverse the same figure seated. In the left hand a lotus [there is nothing in the

[1] Prinsep, ed. Thomas, vol. i. p. 421, calls it 'an instrument of warfare.' Mr. Vaux, Numismatic Chronicle, vol. i. xvi. p. 124, calls it trisula, that is, trident. This it can scarcely be, as it has four points, not three, and is quite different from the trisula in Fig. 19. It may possibly be a flower, and is, in any case, an ancient symbol.

[2] Prinsep says that some, mistaking this for a tail, have supposed the figure to be Hanumán. The only writer I have been able to find advocating this opinion is Simon Casie Chitty, in a paper in the Journal of the Ceylon Asiatic Society for 1845, p. 82. It may be as well to point out that Hanumán, 'the mighty-jawed,' the mythical monkey who appears in the Rámáyana as the faithful ally of Ráma in his fabled invasion of Ceylon, is almost unknown in Sinhalese literature, and was never worshipped in the island. The true origin of the figure is explained below, § 65, and there can be no reason to believe that the Sinhalese meant to represent a mythological monster, known only as an enemy to Ceylon.

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right—the extension with five projections is meant for the hand with the five fingers].[1] The left leg rests on a kind of grating. On the left side of the figure, to the right of the coin, the legend श्री लंकेश्वर *Śrí Lankeśwara*.[2] In Fig. 3 the anuswára circle or dot is misplaced under the left arm of the figure. The complete form of the *e*, a small stroke to the upper right of the क, is very clear in Figs. 3 and 4, and is quite different from the *e* in the *deva* of Fig. 20. The ś over the व is also clear enough in Figs. 3 and 4. The र in all specimens is curiously like द, and unlike the र of rája, Fig. 21; and of Parákrama, Figs. 5, 6, 7, 11, 14, 15.

47. Prinsep[3] says of this coin, 'This name (Lankeśwara) I presume to be the minister Lokaiśwara of Mr. Turnour's table, who usurped the throne during the Cholian subjection in the eleventh century (A.D. 1060): but he is not included among the regular sovereigns, and the coin may therefore belong to another usurper of the same name who drove out Queen Lílávatí in A.D. 1215, and reigned for a year.' Mr. Vaux[4] adopts the former of these two suggestions; but the first part of the word, Lank-, is perfectly clear on several specimens of the coin (see Figs. 1 and 4). If Lokaiśwara had struck a coin and had intended to put his name upon it, he would have done so; and the *o* represented in this alphabet by two substantial strokes, one on each side of the letter (see Fig. 22), could not have disappeared as the tiny anuswára dot has sometimes done.

48. The epithet Lankeśwara, Lord of Ceylon, may apply to any king of that country, and the similarity of name is no reason for fixing it upon either of these Lokaiśwaras. It should be noticed also that the former of the two was not a king at all, but a minister mentioned in the lists as the father of Wijaya Báhu I.; and the latter was a foreign usurper who never was in acknowledged possession of the kingdom, though he retained a precarious hold on the capital for a few months. Discarding therefore the idea that Lankeśwara stands for Lokaiśwara, we have to consider to which King of Ceylon this epithet belongs. It is never used in Ceylon literature before the time of Parákrama the Great. The Páli form Lankissara is then found applied to three kings; namely, to Mahasena, A.D. 275, and his son Kirti Śrí Megha-warṇa, A.D. 301;[5] and to Wijaya Báhu the First, A.D. 1071.[6] The Sinhalese form is only found applied to two kings; namely, to Parákrama Báhu himself in the account of his conquest of South India,[7] and to Nissaṅka Malla, A.D. 1187, in his own inscriptions.[8] Coins were unknown in Ceylon in the time of the first two kings mentioned; it is not known that any were struck by the third. The epithet is used of him in such a way as to convey the impression rather that the word in the time of the writer (tempore Parákrama) had come to be used of all Kings of Ceylon, than that it was a distinctive appellation of Wijaya. There remain the two last; for the former speaks the fact that the word came into use in the literature of his reign; that he conquered South India, and thence introduced the art

[1] I think the object held by Fig. 3 is, like that in the others, meant for a lotus, but compare Fig. 12.

[2] Mr. Thomas altogether dissents from Prinsep's original reading of *Lankeśwara*, and interprets the legible portion of the letters as लंकीवेह *Lanki Veha*, or in No. 4 लंकीविह *Lanki Viha*.

[3] Vol. i. p. 421 of Mr. Thomas's edition.

[4] Numismatic Chronicle, 1853, vol. xvi. p. 125.

[5] In the Dáṭhávansa, Canto v. verses 4, 60.

[6] Mahávansa, edit. Turnour, p. lxxxvi. Both this part of the Mahávansa and the Dáṭhávansa were written in the time of Parákrama.

[7] See my translation in the Journal of the B. A. S. for 1872, vol. xli. part 1, p. 199.

[8] In the Dambulla inscription, and in the Rankot Dágaba inscription, published by me in the Journal of the Royal Asiatic Society of 1874.

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of coining into Ceylon;[1] and that he is the only King of Ceylon who struck several coins; for the latter that though in three of his inscriptions he is not called Lankeśwara,[2] the epithet is given in two others as one of his distinctive titles. On the other hand, in those two inscriptions he is called *Kálinga* Lankeśwara, and on his own coin he uses that title in full,[3] which is exactly what he would have done had he wished to distinguish himself from some previous Lankeśwara.

On the whole, therefore, it seems to me certain—as certain, that is, as the identification of coins bearing such ambiguous legends ever can be—that this coin belongs to Parákrama the Great.

It only remains to add that the coin is rare. There are three examples in the Guthrie collection in Berlin, two in the British Museum, two in my own collection, and one in the collection of H. H. Bowman, Esq., of Baddegama, Ceylon. Those described by Prinsep and Mr. Vaux are in the British Museum.

No. 1 from my collection weighs 67 grains.[4] No. 2 is in the Guthrie collection. No. 3 is in the British Museum and weighs 68½ grains, though, as will be noticed, it is much less in diameter than the others. No. 4 is in the British Museum and weighs 65⅓ grains.

49. *The Lion coin of Parákrama,* Figs. 5, 6, 7. Copper.

On the obverse the standing figure of the rája. The face turned to right represented in the most extraordinary way by three strokes, with a curve for the back of the head. The transition form of this mode of expressing the face, which Prinsep calls 'altogether unique in the history of perverted art,' may be seen in Figs. 9, 11. In the left hand of the figure is the lotus, in the right the weapon referred to in § 46 and note 1. There is no lotus-stalk under the feet. The cap is formed by *two* strokes and a dot. The two dots under the arms are the upper part of the dhoti. To the right of the coin is a well-defined lion, sitting, with the mouth open, showing the teeth in the upper jaw.

On the reverse the seated figure of the rája, and to the right the legend श्री पराक्रमबाज़ *Śrí Parákrama Báhu.*

Fig. 5 is from the Guthrie collection. Fig. 6 from my own is worn, and weighs 55 grains. Fig. 7, also my own, weighs 61 grains. The British Museum has no specimen of this coin, of which less than a dozen examples have been found. My collection has seven of these, two in good condition, besides which I only know of Colonel Guthrie's, and of two others in private hands in Ceylon, one of which is now, I believe, in the possession of Mr. Bowman, and the other in Mr. Dickson's collection.

50. *The half massa of Parákrama Báhu.*

This small copper coin, Fig. 11, has on the obverse the standing figure of the rája, and on the reverse only the legend श्री पराक्रमबाज़ *Śrí Parákrama Báhu.* Prinsep, whose coins are now in the British Museum, says,[5] that 'several specimens of this were dug up in 1837 at Montollee (? Mátale) in Ceylon;' but the Museum has only four, of which the one figured in the Plate is the only one in good preservation, and no others are known to have reached Europe.

[1] See my article in the J. B. A. S. 1872, vol. xli. pt. 1, p. 197.

[2] Namely, the Ruwanwæli inscription published by me in the J. R. A. S. for 1875, and the two others in my article mentioned in the last note but one.

[3] See below § 66.

[4] A sovereign weighs nearly 170 grains.

[5] Loc. cit. p. 422, figure 4.

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51. *The massa of Parákrama Báhu.* Figs. 14, 15.

On the obverse the standing figure as on the Lion coin. To the right beneath is a lotus, and above it five dots. On the reverse the sitting figure, and the legend श्री पराक्रमबाहु *Śrí Parákrama Báhu.* This is the coin which was imitated by the six succeeding rájas, and a good many specimens, perhaps 100 in all, have been found, but very few of them are in good condition, and scarcely any show the *r* at the foot of the *k.* Prinsep seems to have had only one.[1] The best specimen of fourteen in my collection weighs 62 grains.

52. The remainder of the coins, whose identification is certain, belong also to the series just mentioned; each of the following kings having only struck one coin. For the history of these kings the reader is referred to what has been said above; I quote here only the legends on the coins.

श्री विजयबाहु *Śrí Vijaya Báhu.* Fig. 17. Copper.

There were several kings so called; the coin belonging, I think, to the nephew and successor of Parákrama, the second of the name. It is almost certain that Parákrama the Great was the first King of Ceylon who issued coins, and the rarity of the specimens with this inscription agrees well with the shortness of Wijaya II.'s reign. The coin is rare; good examples very rare. The one in my collection, from which the figure is taken, weighs 62 grains.

53. श्री चोडगंगदेव *Śrí Coḍaganga Deva.* Fig. 20. Copper.

This unique coin is in the possession of G. G. Plaice, Esq., late of the Public Works Department in Ceylon. I think there can be no doubt about the reading, though the anuswára is omitted, and the vowel marks of the *o* have pushed out the circle of the च. Turnour in his list has erroneously given the name of this king as Chondakanga, but the India Office MS. of the Mahávansa, ch. 80, clearly reads Coḍaganga.

54. श्री राजलीलावती *Śrí Rája Lílávati.* Fig. 21.

This is not so rare as the Wijaya Báhu. The figure is taken from a specimen in my collection weighing 64 grains.

55. श्री मत्साहसमल्ल *Śrí-mat Sáhasa Malla.* Fig. 23.

Some hundreds of these coins have been found. The curious shape of the square *s*, and the addition of the syllable *mat*, prevented its identification for some time, and Prinsep was the first to decipher it. The *t* is inserted in the upper left-hand corner of the square *s*, and is so small that in most of the specimens it is indistinguishable. The one in my collection from which the figure is taken weighs 63 grains. It is curious that no coins have as yet been discovered of Kalyánavatí, the queen who reigned for six years after the dethronement of Sáhasa Malla. It is true that more of his coins have been found than of any of the others, so that he may very possibly have issued more coins than were needed to supply the small monetary requirements of the country so soon after the numerous issues of Parákrama; but this can scarcely have prevented the new government from making at least a small issue in her honour, as has been done in the case of the other less important sovereigns.

[1] He points out (loc. cit. fig. 3) that one was engraved in the Asiatic Researches, and interpreted, doubtfully, by Professor Wilson, Śrí Ráma Nâth.

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56. श्री धर्म्माशोकदेव *Sri Dharmmáṣoka Deva.* Fig. 22.

The *r* is visible above the *m* in a few specimens only. It may be seen in the figure, which also gives a more complete form of the *d* than occurs on most of the specimens. The coin is very rare, like that of Wijaya Báhu, both these kings having reigned only twelve months. Dharmáṣoka was placed on the throne when he was three months old, though, as Prinsep slily remarks, 'the portrait would lead us to suppose him of mature age.' The well-preserved example figured is in my collection and weighs 65 grains.

57. श्री भुवनैकबाङ्ग *Sri Bhuvanaika Báhu.* Fig. 16.

This sovereign came to the throne nearly a century after the last. His coins are not very rare, but good examples are seldom met with. I have only seen one or two which show the upper stroke of the diphthong *ai* or the vowel mark *u* distinct from the *bh*, which may account for Prinsep's reading Bhaváneka. The unusually well executed specimen in my collection, from which the figure is taken, weighs 63 grains.

58. I now come to coins whose classification is, at present, quite uncertain, and it is doubtful whether some of them belong to Ceylon at all; but I have thought it better to include them all in the plate for the purposes of comparison.

Fig. 24. Copper.

On the obverse the standing figure; on the reverse a bull, standing, to right; above it the new moon; to right of it the legend वी *Vi.* I think it is impossible with Prinsep, *loc. cit.*, to assign this very rare coin to Wijaya Báhu VI., who reigned in Ceylon as late as 1398 A.D., although he was also called Víra Báhu. Niṣṣanka Malla, A.D. 1187, in one of his inscriptions, calls himself, among other titles, Víra, and in another Vírarája; but his suzerainty was not acknowledged in India, and I doubt whether this coin has ever been found in Ceylon. Perhaps it may belong to Víra Páṇḍu, the prince whom Parákrama placed as his vassal on the throne of Páṇḍya (see above, § 38). The specimen figured is in the British Museum; it is the one described by Prinsep, and the only one known to me.

59. *The Lakshmi coin.* Figs. 9, 10. Gold.

On the obverse the standing figure as on the Lankeṣwara coin, but the ornament to the left above instead of below the arm, and to the right the trident. On the reverse the legend लक्ष्मी *Lakshmi;* above it, the same symbol as on the obverse of Fig. 3; which symbol I take for the lotus. Fig. 9 in my collection weighs nearly 17 grains; Fig. 10 is in the British Museum, and weighs $16\frac{1}{5}$ grains; these are the only specimens I know.

60. *The Tamraki coin.* Fig. 12. Gold.

Obverse the same as the last. On the reverse the legend *Tamraki* (?), with the lotus symbol above. From the specimen in the British Museum weighing 7·8 grains.

61. *The Iraka coin.* Fig. 13.

Obverse the same as the last, but the weapon (?) on the right is again held in, and not placed above, the hand. On the reverse the legend *Iraka* (?) surmounted by the lotus symbol, as in Fig. 4 with a stroke and dot behind it. The legend may possibly be Haraka or Daraka; if it

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could be read Laka, that would be the ancient Sinhalese form of Lanká. I have seen six or seven specimens of this coin, which is figured from one in my collection weighing 8 grains, and it has also been found in South India.

62. *The large Sétu bull coin.* Fig. 19. Copper.

On the obverse the standing figure as in the Lion coin, but the weapon or flower in the right hand has degenerated into a straight line with several cross-strokes. In the place of the lion the trisúla or trident, and a sceptre. On the reverse the bull sacred to Vishnu, above it the new moon with a star between the horns of the crescent; below, the legend சேது *Setu:* to the left of the figure five small dots, to the right twelve dots.

Prinsep's note on this coin is as follows:[1] 'Two of these exhibit a new type of reverse, the Indian bull Nandi, which may possibly betoken a change in the national religion. The legend beneath I immediately recognized as identical with the flourish on Fig. 12, turning the latter sideways to read it. What it may be is a more difficult question. The first letter bears a striking analogy to the vowel *e* of the Southern alphabets; but if so, by what alphabet is the remainder to be interpreted? for it may be equivocally read *betya, benya, chetya,* and perhaps *Chanda* or *Nanda.* The last alone is the name of a great conqueror in the Cholian and other Southern annals, but it would be wrong to build on so vague an assumption. It is at any rate probable that the "bull" device is a subsequent introduction, because we find it contained in the Halco Kanora coins below.'

63. I was for some time in doubt about the legend; but it now seems to me certain that the reading of the legend as above is correct. Sétu, which means originally a bridge or causeway, is used in the Bhagavata Purána as a name 'of Adam's Bridge or of one of the islands of this great group.' This latter can only be Rámeṣwaram, which is given as one of the meanings of the word in Winslow's Tamil Dictionary. Now we are distinctly informed in the Narendra-caritáwalokana-pradipikáwa, a very trustworthy Sinhalese epitome of the Mahávansa, that Parákrama's general Lankápura, after conquering Páṇḍya, remained some time at Rámeṣwaram, building a temple there, and that while on the island he struck *kahawanu,* that is kahápaṇas.[2] As the temple was built in honour of Vishnu, the bull need not surprise us, and it betokens no change in the national religion. It is true that Parákrama was a Buddhist, but the tolerance of Buddhist monarchs is well known, and one of the best preserved of the ruins of Parákrama's capital Pulastipura (the modern Topáre) is a Vimána for the worship of Vishnu. Round the outside of this building, which was erected either by Parákrama himself or by Niṣṣanka Malla, runs an inscription in Tamil characters of very much the same type as those on these Setu coins, and bearing the same relation to modern Tamil as the Sinhalese characters of Parákrama's and Niṣṣanka Malla's inscriptions do to modern Sinhalese. We shall, I hope, learn the purport of this inscription when Dr. Goldschmidt publishes his anxiously expected report on the Archæology of Ceylon: that the temple is sacred to Vishnu is certain from the four stone bulls on its summit, which are *couchant* like the bull on the coin. It will

[1] Loc. cit. p. 423.

[2] See my translation of the passage *loc. cit.* (§ 48, note 8).

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be seen from my Dondra Inscription No. II.,[1] that this is not the only instance of Buddhist Kings in Ceylon building temples to Vishnu.

In dealing with coins that bear only a local description, there can seldom be absolute certainty in the identification, but—1. I know of no other ruler of Rameswaram of whom it is known from historical records that he struck coins there. 2. These resemble exactly in shape, size and appearance the Kahápaṇas struck by Parákrama in Ceylon. 3. As far as I have been able to ascertain, the South Indian coins are, with one exception,[2] of a quite different size, weight and appearance. 4. Those rájas who ruled over Rameswaram are not known to have issued any coins, while the Cholian and Páṇḍyan rájas who conquered it would not have had any particular reason to put Setu on their coins; whereas, to Parákrama, his continental conquests were naturally a source of more than ordinary pride. 5. If these coins belonged to any of the South Indian dynasty, they would probably bear some one of the constant symbols used by those dynasties on their coins. I regret very much that Sir Walter Elliot was not able to get ready his paper on South Indian coins for this series, before mine was published. With the very meagre accounts of South Indian numismatics at present obtainable, the Ceylon numismatist is working a good deal in the dark; but at present, and with the evidence before me, I think that these coins are probably the very ones referred to as having been struck by Parákrama's general Lankápura at Setu.

The coin is very rare, only five or six examples being known. My specimen, a very perfect one, from which the figure in the Plate is taken, weighs 68 grains.

64. *The small Sétu bull coin.* Fig. 18. Copper.

This is a half-size copy of the last, except that the large dots in the circle round the edge of the coin in Fig. 9 are here circles, and only three dots are required inside the circle to fill up the space by the side of the bull.

My own specimen and the one in the British Museum are the only ones known to me.

65. The exception referred to in the last paragraph but one is the coin with the inscription Rájarája (Fig. 8) which is inserted in the Plate, because it is the coin from which I believe the whole of the Ceylon series to be derived. Prinsep read it tentatively Gaja-rája,[3] and included it doubtingly in his plate of Ceylon coins. But the reading as above is no longer doubtful, and the coin has never, like those just mentioned, been found in Ceylon, while large numbers of the copper ones, and a few in gold, have been found in different places in South India, and especially in Amarávatí and Tanjúr. There were doubtless many princes in South India who arrogated to themselves the title of king of kings, and it became so much a mere name that one of the petty Cholian chiefs who opposed Lankápura, is called Rája-rája Kalappa.[4] The title is also found used as an evident name in the copperplate grants of the Chálukya rájas in the eleventh century, though, as far as I know, it was never used alone.[5] Of course Parákrama, the conqueror of the Kings of Chola,

[1] Journal of the Ceylon Asiatic Society, 1873. [2] See next paragraph but one, § 65. [3] *Loc. cit.* p. 423.
[4] The India Office MS. of the Mahávansa, chap. 77, verse 75.
[5] Sir Walter Elliot informs me that there was a Rajaraja Chola circa 1022–1068, and a Rájarája Vikramáditya 1078.

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Pándya and Kalinga, and even of Rámánya and Kámboja, may well have called himself king of kings; but there can, I think, be no doubt that this coin belongs to one of the South Indian kings so called, and that it is the coin imitated by Parákrama in *his* coins, from which the Ceylon series is derived.

66. A coin of Nissanka Malla has been referred to above (§ 48), of which only three examples are known, two in the possession of Sir Walter Elliot, and one in the collection of Mr. Dickson, Government Agent of the North Central Province, Ceylon. Unfortunately all three specimens are just now mislaid, and though this paper has been delayed in the hope that one would be found, we are at last compelled to go to press without being able to include a figure of this coin in the Plate. The coin is of copper, and exactly like Fig. 14, except as regards the legend on the reverse. This legend Mr. Dickson, in a paper read before the Numismatic Society on the 19th of May, 1876, conjectures may possibly be read *Śrí Káli Gala Kíja;* but he is unable to determine to what reign the coin may belong, and does not consider the above reading at all certain. Not having the coin before me, I speak with great diffidence; but it seemed to me, when I once had an opportunity of inspecting it, to bear the legend *Śrí Kálinga Lankeśvara.* Below the Śrí, which was the same as that of Fig. 14, I read

कालि
ग ल
क व

That the *anusvára* was not visible above the ग need not surprise us, as it was seldom visible on the Lankeśwara coins (Figs. 1, 2, 3, 4); and on those coins we usually find simply Lakavara for Lankeśvara, the dot for the anusvára, the small stroke for the *e*, and the tiny *ś* added above the *v*, being rarely legible. Lastly, throughout the series, when there are six letters below the *Śrí*, the last of the six is almost always cut in half or quite missing, which would explain the absence of the *ra*.

If the reading I suggest should eventually prove to be correct, there can be very little doubt that the coin belongs to Nissanka Malla. It is true that in the list of kings at § 45 it will be seen that there are five sovereigns, or six if Dharmáśoka be included, who might have called themselves *Kálingan Lord of Ceylon;* but if the coins were struck by any successor of Nissanka Malla, he would probably have used some title which would distinguish him from that prince, the first of those to whom the legend would be applicable. Of all the later Kálingan princes we have coins, except of Mágha, who hated everything Sinhalese, and of Wikrama Báhu, who only reigned for three months. Kálinga Lankeśvara is one of the titles used by Nissanka Malla in his inscriptions,[1] and it is highly probable that he would imitate Parákrama the Great in his issue of coins, as he did in his inscriptions and his buildings.

				SECTION
67. For Figures 1–4	with legend	Śrí Lankeśvara	see - -	46–48
„ 5, 6, 7	„	Śrí Parákrama Báhu	„ - -	49
„ 8	„	Rájarája	„ - -	65

[1] See above, § 48, note 8.

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				SECTION.
For Figures	9, 10	with legend	Lakshmí (?) see - -	59
„	11	„	Ṣrí Parákrama Báhu „ - -	50
„	12	„	Tamrakí (?) „ - -	60
„	13	„	Iraka (?) „ - -	61
„	14, 15	„	Ṣrí Parákrama Báhu „ - -	51
„	16	„	Ṣrí Bhuvanaika Báhu „ - -	57
„	17	„	Ṣrí Vijaya Báhu „ - -	52
„	18, 19	„	Setu „ - -	62, 64
„	20	„	Ṣrí Coḍaganga Deva „ - -	53
„	21	„	Ṣrí Rája Lílávatí „ - -	54
„	22	„	Ṣrí Dharmáṣoka Deva „ - -	56
„	23	„	Ṣrímat Sáhasa Malla „ - -	55
„	24	„	Ví . . . „ - -	58
„	25	Hook Money - - - -	„ - -	68–73

Hook Money.

68. There only remains to be mentioned *the hook money*, Fig. 25, which is comparatively a modern coin—if coin it can be called—but which is interesting from its curious shape and history.

The earliest mention of these silver hooks is by Robert Knox, who was kept prisoner for twenty years from 1659–1679 in the Kandian provinces of central Ceylon, and who after his escape published an account of his adventures and of the Sinhalese people. This most valuable work is thoroughly trustworthy. Knox and his companions were not confined in any prison, but in separate villages, where they were allowed to go in and out among the people. Most of them acquired property, and marrying Sinhalese women, became Sinhalese peasants; but Knox himself never gave up the hope of escape, and ultimately effected his purpose. His mode of life in Kandy was the best possible for gaining sure knowledge of the habits of the people; the simple straightforward style of his book must convince every reader of his truthfulness; and the more one knows of the state of society among the Sinhalese in remote districts who are little acquainted with Europeans, the more one learns to value the accuracy of his minute and careful observations. After mentioning the Portuguese copper "tangums," he adds: "There is another sort (of money) which all people by the king's permission may and do make; the shape is like a fish-hook, they stamp what mark or impression on it they please; the silver is purely fine beyond pieces of eight; for, if any suspect the goodness of the plate, is is the custom to burn the money in the fire, red hot, and so put it in water, and if it be not then purely white, it is not current money. The third sort of money is the king's proper coin; it is called a pounam (panam); it is as small as a spangle; 75 make a piece of eight, or a Spanish dollar; but all sorts of money are here very scarce, and they frequently buy and sell by exchanging commodities."[1]

[1] Edition by Philalethes, 4to. 1817, p. 197. The original work was published in 1681 by order of the East India Company.

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69. While Knox was in captivity in Ceylon, Sir John Chardin was travelling through Persia, and he mentions that coins of silver wire had been made in Lari on the Persian Gulf, till that State was conquered by Abbas the Great of Persia (1582-1627); and that they were still much used 'en tout ce païs la, et aux Indes, le long du Golph de Cambays, et dans les païs qui en sont proche. On dit qu'elle avait cours autre fois dans tout l'Orient.'[1]

That the Ceylon coins were made in imitation of these is evident from the name given to them in another passage of Knox, where he says (p. 196) that two pálas of paḍi were sold in time of harvest for a *laree*.

70. If any confirmation were needed of Knox's statement that *laris* were actually made in Ceylon it would be found in a curious passage from the work of Pyrard, a Frenchman, who, fifty years earlier, had spent five years as a captive in the Maldive Islands, and who, after his escape, published a graphic and trustworthy account of the then habits and customs of the people there. Of their coinage he says (I quote the old French as it stands mostly unaccented): 'La monnoye du Royaume n'est que d'argent & d'une sorte. Ce sont des pieces d'argent qu'ils appellent *larins* de valeur de huist sols ou enuiron de notre monnoye, comme i'ay desia dit, longues comme le doigt mais redoublees. Le roy les fait battre en son isle & y imprimer son nom en lettres Arabesques.'

After saying that they received foreign coins, if of gold and silver, at their value by weight; and adding some general remarks on coinage in India, he goes on:

'Donc pour retourner, aux Maldives ne fait que des *larins*; d'autres pieces de moindre valeur ils ne s'y en fait point: tellement que pour l'effect de leur traffic ils coupent l'argent & en baillent un poids de la valeur de la marchandise achetee: ce qui ne se fait pourtant sans perte, car en coupant le larin on en perd la douzieme partie. Ils ne prennent piece d'argent qu'ils ne l'ayent pesee et mise dans le feu, pour en esprouuer la bonté. Aussi au lieu de billon & menuë monnoye ils usent de coquilles (cowries) dont i'ay cy-deuant touché quelque chose, & i'en parleray incontinent; les douze milles valent un larin.'[2]

71. So also Professor Wilson, in his remarks on fish-hook money in the Numismatic Chronicle,[3] describes some pieces of silver wire, not hooked, which were coined, in imitation of the old *laris*, at Bijapúr by Sulṭán 'Ali Ádil Sháh, who reigned from 1670–1691. They bear on both sides legends in Arabic characters; on one side the Sulṭán's name, on the other 'Zarb Lari Dangh Sikkha,' that is, 'struck at Lari, a stamped Dangh'—dangh being the name of a small Persian silver coin.[4] 'Traces of a date,' continues Professor Wilson, 'occasionally appear, but they are

[1] Voyages du Chevalier Jean Chardin en la Perse, second and complete edition, 4to. Amsterdam, 1835, vol. iii. p. 128. He travelled, according to the preface, from 1664–1677, and the first edition of his Voyages was published in 1717.

[2] According to Hamilton's Gazetteer, quoted by Mr. Thomas, 'Ancient Indian Weights,' cowries were worth in Bengal in 1820 rather less than 6000 for a rupee. The passage quoted is from the third edition of Pyrard's 'Voyages,' Paris, 8vo. 1619, pp. 248–250. From p. 5 it appears that he started in 1601; from p. 60 that he was wrecked on the Maldives on the 3rd July 1602. He escaped in 1607, and the first edition of his book appeared in Paris in 1611. Mr. Albert Gray, who gave me this reference, informs me that, from the words given by Pyrard, it is clear that the Maldivians are Sinhalese by race, though they are now Muhammadans by religion.

[3] Vol. xvi. pp. 179–182. These specimens are now in the British Museum.

[4] So Professor Wilson; Mr. Thomas informs me that 'struck *a* lari' would be a more precise rendering of the Persian words. [The so-called *Dangh* was primarily a *weight*, hence its equivalents, in silver, came to represent the fractions of the current coin.]

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not very distinct, except in one instance, in which it may be read with some confidence 1071= 1679 A.D. . . . . His (the Sulṭán's) retaining the designation of the place where this sort of money was originally fabricated is not without a parallel. . . . . The coins of the last Sháh Alam of Delhi, though coined all over India, continued to bear . . . . the mintage of Sháh Jehánabad; and the Company's rupee bore the legend "struck at Murshidabad," many years after it was coined at Calcutta. . . . . Mr. Coles mentions a document among the records of the Collectorate in which notice is given by the Government of Satara to the authorities of a place termed Kharaputtun of a grant of land of the *value of* 200 *Dhabal Larins*, which is dated 1711.[1] The fabrication of this money, extensively adopted by the last Bijapúr kings, was therefore continued by Sivaji, the founder of the Mahratta principality, and his successors. There is nothing in the appearance of the specimens brought from Ceylon to indicate an original fabrication.'

72. Of the original Larins of Laristán, none seem to be now extant; but it is quite clear, to use the words of Mr. Vaux,[2] that 'the Laristán coins having become, as Chardin says, popular in the East, they were extensively imitated;' and the testimony of Knox as to their having been made by private people in Ceylon must be accepted as true.

73. Professor Wilson says of the Bijapúr Larins that they are 'of the same weight (as the Ceylon hooks), viz. about 170 gr. troy.' But my specimen, from which the figure is taken, weighs only 74½ grains, and two others mentioned by Mr. Dickinson[3] weigh only 3 dwts. 2 gr., and 3 dwts. ½ gr. respectively. Authentic specimens from Ceylon are very rare. They have on one side only a stamp in imitation of Arabic letters, often clear enough, but of course quite illegible; and they are always hooked. I have not seen one with any marks which could be read Śrí in Sinhalese or Devanágarí characters, as suggested by Professor Wilson. How late these hooks were made in Ceylon it is impossible to state exactly; very probably until they were superseded by the Dutch coinage in the eighteenth century. They are known in Sinhalese literature under the name of *ridi*, i.e. silver; although this term was, doubtless, applied, before the introduction of the *Larins*, to other silver money, of which it is curious that no specimens should have survived. The term *ridi pahayi*, i.e. five ridis, is still used in remote districts in the sense of rix dollar.

[1] The Collectorate referred to is that of Ratnagiri on the coast of Canara. Mr. Coles had sent to the Government 396 *larins* found there in 1846, in digging the foundations of a house.

[2] Numismatic Chronicle, vol. xvi. p. 132.

[3] Ibid. p. 169.

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APPENDIX TO PART IV. European Ceylon Coins.

74. No coins are known to have been struck by the Portuguese in or for Ceylon. Knox says (loc. cit.) that of three sorts of coins in use, 'one was coined by the Portugals; the king's arms on one side and the image of a friar on the other, and by the Chingulays called tangom massa. The value of one is ninepence English; poddi tangom or the small tangom is half as much;' but these were probably struck in Portugal, and not for use only in Ceylon.

75. The Dutch struck only a very few silver rix dollars,[1] which are very rare, if not entirely extinct, and which I have never seen. A thick copper stuiver having on the obverse the monogram V.O.C. the O and C written over the sides of the V, and in the open part of the V the letter C, perhaps for Colombo or Ceylon, is occasionally met with. On the reverse is the legend 1 *Stuiver*, the numeral 1 being above the word *Stuiver* (which occupies the centre of the coin), and having four dots on each side of it. Below is the date, the dates in my collection being 1784, 1785, 1786, 1789, 1791, 1793, 1795. It is possible, however, that this C is only a mint mark, and that these coins, whose rough execution shows them to have been struck in the Dutch East Indies (the monogram V.O.C. stands for the initial letters of Vereinigte Ostindische Compagnie, *i.e.* United East Indian Company), were not, after all, struck in Ceylon. There are similar coins with two apparently Tamil letters below the words *stuiver*, and with T and G in the place of C.[2] If these letters stand for Trinkomalei and Galle, then one would expect Sinhalese letters, but they look like the Tamil letters I L, ஓ ல for Ilankei, the Tamil form of Lanká, that is, Ceylon.

76. The English have issued four types of coins besides the present one. Type 1, which is thick and coarsely executed, has on the obverse an elephant, below which is the date; on the reverse the words Ceylon Government running round a circle, within which is the value of the coin. Of this type there are three thick silver pieces (very rare) of the value of 96, 48, and 24 stuivers (4 of which=1 fanam), weighing 280, 140 and 70 grains[3] respectively.[4] The 48 stuiver piece is equal to the rix dollar, and the three thick copper pieces of this type are respectively worth $\frac{1}{192}$, $\frac{1}{96}$, and $\frac{1}{48}$ of its value. These copper coins weigh 50 stuivers to the pound,[5] and are now difficult to procure.

Of this type, specimens of the following years, without letters, are in my collection, and those of the years marked (B.M.) are added from the British Museum collection:

Silver, 96 stuivers, 1808 (B.M.), 1809 (B.M.).
„ 48 „ 1803 (B.M.), 1804 (B.M.), 1808, 1809 (B.M.).
„ 24 „ 1803, 1804 (B.M.), 1808 (B.M.).

[1] Bertolacci, p. 79. [2] See Neumann's 'Kupfermünzen,' pp. 59, 60. [3] A florin weighs 174 grains.
[4] Bertolacci, pp. 88, 94, and 96. [5] Ibid. p. 90.

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Copper, 4 stuivers, 1803 (B.M.), 1804, 1805 (B.M.), 1811 (B.M.), 1814, 1815.
„ 2 „ 1801, 1802, 1803, 1805 (B.M.), 1811, 1812 (B.M.), 1813 (B.M.), 1814, 1815, 1816.
„ 1 „ 1801, 1802, 1803, 1808 (B.M.), 1809, 1811 (B.M.), 1812, 1813, 1814, 1815, 1817.

77. Of Type 2 one issue was made, in copper, in 1802, of stuivers, half stuivers, and quarter stuivers; they are thin, like modern coins, and well executed, weighing 36 stuivers to 1lb.[1] Obverse and reverse as on the last type. The British Museum has specimens of this type dated 1804, but it is not certain whether these were ever in circulation.

78. Of Type 3 also only one issue was made, in 1815, of two-stuiver, stuiver, and half stuiver pieces in copper, and one issue of rix dollars in silver in 1821. Obverse of the copper, head of George III. to right, with legend GEORGIUS III. D. G. BRITANNIARUM REX: of the silver, head of Geo. IV. to left, with legend GEORGIUS IV. D. G. BRITANNIARUM REX F. D. Reverse of the copper, an elephant to left: above the legend, *Ceylon Two Stivers, One Stiver*, or *One-half Stiver*, with the date below. The silver the same, but the legend is *Ceylon one rix dollar*, and round the elephant is a wreath of flowers. The coins of this type are still occasionally met with in the bazárs, but the half stuiver is very difficult to get. Both this and the last issue were struck in England.

79. Lastly, Fanam pieces of two kinds were struck in silver. The first, which is very rare, and was issued about 1820, has simply round a small circle with a dot in its centre FANAM on the one side and TOKEN on the other, of a silver coin less than $\frac{3}{10}$ of an inch in diameter, and without date. The work-people who built Baddegama church, the oldest English Church in Ceylon, are said to have been paid in this coin, which is roughly executed. The other, which is half an inch in diameter, has on the obverse the bust of Victoria surrounded by the legend VICTORIA D. G. BRITANNIAR. REGINA F.D., and on the reverse the figures $1\frac{1}{2}$ and the date 1842, surmounted by a crown and surrounded by a wreath. This little coin, seldom met with in Ceylon, is beautifully executed, and was struck in England; whilst the *fanam tokens* were struck in Ceylon.

80. There is in the British Museum one silver specimen of another type, but whether this is a proof of an unpublished coin, or a specimen of a coin in actual circulation, I have been unable to ascertain. It has on the obverse the words TWO RIX DOLLARS in a square tablet surmounted by a crown; above it, CEYLON; below it on a scroll, DIEU ET MON DROIT, and below that again the word CURRENCY. On the reverse an elephant to the left, and below it the date 1812.

81. Bertolacci's rare work on Ceylon gives full details of the Dutch and English coinage down to the year 1815. He was Comptroller General of Customs in the island, and for some time acting Auditor General, and published his book after his return to England in London in 1817.

[1] Ibid. p. 87.

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PART V. On the Ceylon Date of Gautama's Death.

82. Though not coming strictly within the limits of the present paper, a review of the conflicting evidence regarding the Buddhist era, which forms so important a date-point for all Indian chronologies, can scarcely be out of place in a work aiming at so much comprehensiveness and completeness as the 'Numismata Orientalia.' The present opportunity also chances to afford a fit occasion to meet the legitimate inquiries of those who have hitherto placed exceptional reliance on the value of the Ceylon annals, as preserved in their independent Páli and other local texts. At the request of Mr. Thomas, I have ventured, therefore, to add in this Part, a statement of the views on the general question at which I have arrived, and of the arguments by which they are supported, in amplification of a paper read before the Royal Asiatic Society in April, 1874.[1]

83. It is well known that, whereas, among the Northern Buddhists, there reigns the greatest uncertainty as to the date of the Buddha's death, the Southern Church is unanimous in fixing that event on the full-moon day of the month of Vaiṣákhá, that is, on the 1st of June, in the year 543 B.C. This latter date has been supposed the more worthy of credit as being found in very ancient writers, and as having formed the starting-point of a chronology in actual daily use among the Southern Buddhists; whereas the different dates of the Northern Churches are known to us only from modern writers,[2] and none of them have been made the basis of a chronological era.

84. It seems to me, however, that too much weight has been attached to this reasoning. As a matter of fact, it is very doubtful whether the Buddhist era has ever in any country been regularly and constantly used in every-day life as we use our era. Even in Ceylon the Buddhists, when Europeans first settled in the island, used, not only the Buddhist, but also and more frequently the Śaka era; and often dated events by neither, but merely by the year of the reign of the king in which the event occurred. Thus, of three comparatively modern inscriptions I have published, one is not dated at all, but gives the date of a previous gift as the year 2110 of the Buddhist

[1] See the report in the *Academy* of April the 25th in that year.

[2] Csoma de Körösi gives thirteen dates ranging from 2422 to 546 B.C. on the authority of a Tibetan work written in 1591; and another, 882 B.C., on the authority of an author who wrote in 1686.—'Tibetan Grammar,' p. 199. The more usual Chinese and Japanese date corresponds to 950 B.C. according to Rémusat (Foe Koue Ki, p. 79, where he gives the name, but not the date, of his Chinese authority); but on page 42 he mentions some other Chinese authors who place it in 609 B.C. See also Beal's valuable note in his Fa Hian, page 22, where twelve dates are given.

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era (*Buddha-warshaya*);[1] a second is dated in the sixth year of the then reigning king;[2] and the third in the year 1432 of the 'auspicious and correct Ṣaka era' (*ṣrí ṣuddha Ṣaka warusha*).[3] On the few occasions on which it was necessary to use a date, it was doubtless possible for the Ceylonese to calculate which year it was according to their *Buddha-warusha*; but the earliest record in which such an expression occurs is in a Pulastipura inscription of the twelfth century.[4] Before that time we have only the statements in the Dípavaṅsa and the Mahávaṅsa that Aṣoka's coronation took place 218, and the Council of Patna 236 years after Buddha's death; the chronology of those works being otherwise dependent entirely on the lengths of the episcopacy of the chief priests, and of the reigns of the kings. Turnour gives, in the introduction to his edition of the Mahávaṅsa, the dates of some other events dated in years of the Buddhist era, but he does not specify the authorities from which he draws his statements.[5] Before the Dípavaṅsa no instance has yet been found of the time of Buddha's death being used as the starting-point from which to date events.

85. In this connexion it is at least worthy of notice that Fa Hian, who was in Anurádhapura in the year 412,[6] places in the mouth of an 'eloquent preacher' there, in an address urging the people to honour the Tooth, the statement that the Buddha had died 1497 years before—that is, in 1085 B.C.[7] Mr. Beal is in doubt whether this date, so strikingly at variance, both with the Ceylon date and that of other Chinese authors, should be ascribed to Fa Hian himself, or to the 'eloquent preacher'; but in either case it is strange that Fa Hian, who remained two years in the island,[8] should not, after his attention had been directed to the point, have acquired any better information than this as to the chronology then accepted there.[9] He probably filled up the date according to some Chinese calculation, when he drew up the account of his travels after his return home; but the passage is still very strange, especially as the Dípavansa was, almost certainly, already in existence (and even if not, at least the materials on which it is based) in the very Wiháre in which Fa Hian studied.

86. However this may be explained, it is clear that the Buddhist era was not used from the time at which it begins to run; and its accuracy depends, not on its having been constantly used, but *on the reliability of the calculations* made by those who first began to use it. In a similar manner our own era and the Hajra of the Muhammadans only began to be used a long time after the events from which they date; and, in reckoning back, the first calculators in each case made mistakes. We need not therefore be surprised to find mistakes in the calculation

[1] Ceylon Friend, 1870, p. 59. The probable date of the inscription is 1685.

[2] 'Journal of the Ceylon As. Soc.' 1870, p. 21. The king referred to is uncertain; and the date of the inscription either 1470 or 1540.

[3] Ibid. p. 26.

[4] In Parákrama the Great's Inscription on the *Gal Wihára*. Comp. above, p. 24, note 1.

[5] Mahávansa, p. lx.

[6] See Rémusat's note, Foe Koue Ki, p. 347.

[7] Beal, p. 156; Rémusat, p. 335. The translations differ materially as to other points in the address, but agree in this.

[8] Beal, p. 165.

[9] That Fa Hian had had his attention called to the matter is evident from ch. vii. (Rémusat, p. 33; Beal, p. 22), where he fixes the death of Buddha in 'the time of Ping-wang of the Chau family.' The Chau dynasty is the third in the Chinese lists, and is quite legendary, as it fills up the period from 1118–252 B.C. (Numismatic Chronicle, vol. xvi. p. 53.) Ping-wang is said to have reigned from 770 B.C. to 720 B.C.

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of an era that has been less regularly used, and began to be used only after a much longer interval; and we can place but very little reliance on any results, unless we know, and can check, the data on which they depend. It is in this respect that the Ceylon date is of so much more value than any other at present known; it is the only one which we can really test; and in Ceylon alone have such materials been preserved as enable us to make a calculation for ourselves.

87. The Ceylon date, as has just been pointed out, depends ultimately on two historical works, the Dípavaṅsa, Turnour's epitome of which, published in 1838, contains all the passages necessary for this discussion; and the first part of the Mahávaṅsa, edited by Turnour in 1837. The Dípavaṅsa is a history of Buddhism in India and Ceylon: the first eight books treating of India, the ninth and tenth of Ceylon previous to Devánampiya Tissa, the next six books of the events of that king's reign, and the last five of the kings of Ceylon for the next 500 years, B.C. 230—A.D. 302. As it is one of the books by 'ancient writers' mentioned by Mahánáma, the author of the Mahávaṅsa,[1] it must have been written some time before he wrote (which was between 460 and 470 A.D.), and may therefore be placed at the end of the fourth or beginning of the fifth century A.D.[2]

88. Neither of these works, of course, gives the date 543; but the Mahávaṅsa, as continued by subsequent writers, gives a succession of kings from the time of Aṣoka to the advent of Europeans in Ceylon, which fixes the date of Aṣoka's coronation in the year corresponding to the year 325 B.C. of our era, and both works place that event 218 years after the Buddha's death. The date 543 is found in fact to depend on three periods. 1st, the period from 161 B.C. to the present time, the calculation of which depends on the lengths of the reigns of the Ceylon kings down to the cession of the island to the English, and may be accepted as substantially correct. 2nd, a period of 146 years (Mahávansa, pp. 97, 162) from the accession of Duṭṭha Gámiṇi in 161 B.C. back to the accession of Devánampiya Tissa in the year of the Council of Patna, in the eighteenth year after Aṣoka's coronation. 3rdly, a period of 218 years (Dípavansa, 9th Bk.; Mahávansa, p. 22) from his coronation, or of 236 years from the Council back to the death of the Buddha (236+146+161=543). Accepting the first, I propose to examine at some length the two latter periods, as to which the Ceylon data—it will, I think, be found—are not reliable.

89. Adding 146 to 161, we obtain, according to the Mahávansa, the year 307 B.C. for Aṣoka's Council, and the year 325 therefore for his coronation, eighteen years before. Now on this point we have information from other sources, which, though it does not enable us to fix that event with absolute certainty within one year, is yet, as far as it goes, quite reliable. That information

[1] Turnour, p. 1. A stanza from it is quoted on p. 207.

[2] See *Jas. D'Alwis*, Attanugalu-vansa, pp. x, xxv. Descriptive Catalogue, pp. 118-168. *Turnour*, Journ. of the Bengal As. Soc. vol. viii. p. 922. *Weber*, Neueste Forschungen, p. 61; Indische Studien, vol. iii. p. 177; Review of Alwis's Pali Grammar (Engl. ed.), p. 24. *Westergaard*, Ueber Buddha's Todesjahr, p. 98 (of Prof. Stenzler's German edition). *St. Hilaire*, Journal des Savans, Fev. 1866, pp. 102, 113. *Max Müller*, Buddhaghosha's Parables, p. x, and Ancient Sanskrit Literature, p. 267. I am glad to say that my friend, Dr. Oldenberg, of Berlin, is now preparing a complete edition of the Dípavansa.

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depends upon two ways in which Aṣoka is brought into connexion with European history; firstly through his grandfather Chandragupta, and secondly by his own Edicts.

90. Chandragupta, in Páli *Candagutta*, the Sandrokottas of the Greeks, is said to have had an interview with Alexander, who at the end of 326 B.C. was on the banks of the Hyphasis, and who left India in August, 325. Soon afterwards, but it is not exactly known how soon, Chandragupta became King of Magadha and of the whole Ganges valley, on the murder of King Nanda. After Alexander's empire fell to pieces, Seleukos Nikator fought with Chandragupta; and on peace being concluded, married his daughter, and sent as an ambassador to his court at Patna, then called Páṭaliputra, the celebrated Megasthenes, from whose lost book on India so much of the Western knowledge of India was derived. The date of these events is only known so far that they can be placed within a year or two of 306 B.C. So also the only passage which speaks of Chandragupta's accession to the throne does not give an exact date. Justinus says that Chandragupta had won the kingdom 'at that time when Seleukos was laying the foundations of his future power.'[1] Now Seleukos was Satrap of Babylon from 321-316; in that year he was compelled to fly to Egypt, where he remained four years. In 312 he returned with a small army; and so popular had he made himself during his former government, that in less than a year he drove out Antigonus; the Seleukidan era dating accordingly from 312 B.C. It follows, I think, that the passage in Justinus can only apply to the time when Seleukos was Satrap; and, therefore, if we can place implicit reliance upon the statement in question, that Chandragupta became king about 320 B.C.[2] He reigned, according to both Buddhist and Brahman authorities, twenty-four years,[3] and his son Bindusára twenty-five years according to the Buddhists, and twenty-eight years according to the Váyu Purána. As Aṣoka was crowned four years after the death of his father Bindusára, the date of his coronation would therefore fall either in 267 or in 264, according as we follow the Buddhist or the Purána statement of the length of Bindusára's reign.

91. We can fortunately check this result by an entirely independent calculation. In Aṣoka's thirteenth edict, which belongs to the twelfth year of his reign, he mentions five Greek kings as his contemporaries. Of this edict we have three copies, one from Kapur di Giri,[4] one imperfect one from Girnar (Giri-nagara),[5] and a third in good preservation from Khálsi.[6] It is agreed[7] that these five kings are

[1] Hist. Philip. xv. 4. The passage is as follows: *transitum deinde in Indiam fecit* [Seleucus], *quæ post mortem Alexandri, veluti cervicibus jugo servitutis excusso, præfectos ejus occiderat. Auctor libertatis Sandrocottus fuerat. . . . Sic adquisito regno Sandracottus ea tempestate, qua Seleucus futuræ magnitudinis fundamenta jaciebat, Indiam possidebat.* . . . . . Comp. *Pliny*, Hist. Nat. vi. 21, 68. *Diodorus Siculus*, xvii. 93. *Curtius*, ix. 2, 7. *Strabo*, i. 1; xv. 1, 11, 36. *Arrian*, Anabasis, v. 6, 2. Indica, v. 3, x. 5. *Plutarch*, Vita Alexandri, 62.

[2] On this point Westergaard's argument, Ueber Buddha's Todesjahr, pp. 115–117, seems to me quite convincing.

[3] The Váyu Purána quoted in Wilson's Vishnu Purána, p. 469, or vol. iv. p. 187, of Fitzedward Hall's edition. Dípavansa, Canto 5. Mahávansa, p. 21, where, by a copyist's blunder, 34 is given. Samanta Pasádiká (Buddhaghosha's commentary on the Vinaya), quoted by Turnour, Mah. p. lii.

[4] Cunningham's Archæological Report, vol. v. p. 20.

[5] Prinsep's Essays, vol. ii. p. 20, of Mr. Thomas's edition.

[6] Cunningham, in his Arch. Rep. vol. i. p. 247, gives the best text of this section of the Khálsi copy of the edict.

[7] Kern, Jahrtelling der zuidelijke Buddhisten, p. 27. Westergaard, Ueber Buddha's Todesjahr, p. 120. Cunningham in Thomas's Prinsep, vol. ii. p. 26. Lassen, Indische Alterth., vol. ii. p. 254.

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1. *Antiochus* (Theos of Syria), 261-247.
2. *Ptolemy* (Philadelphus of Egypt), 285-246.
3. *Antigonus* (Gonatus of Makedon), 276-243.
4. *Magas* (of Kyrene), died 258.
5. *Alexander* (II. of Epirus), 272-254 (about).

92. The latest date at which these kings were reigning together is 258, the earliest 261; and if we could be certain that Aṣoka was kept informed of what happened in the West, we might therefore fix the twelfth year of his reign between these two years; and hence the date of his coronation between 270 and 273 B.C. This cannot, however, be done with absolute certainty. The inscription merely records that Aṣoka's regulations for planting trees on road-sides, for propagating rare medicinal plants, and for establishing hospitals for men and beasts, etc., had also been carried out in the dominions of the kings referred to.[1] We can, therefore, only draw the conclusion that in the twelfth year of his reign Aṣoka believed that these five kings had *lately* ruled in the West. The list indeed shows that his acquaintance with Western politics was not inexact. At the time in question the territories included within the limits of what had been Alexander's empire were in fact divided between the three kings whom he first mentions, and several lesser, but still independent, despots, such as the kings of Bithynia, Pergamum, and other unimportant States. The choice of the fourth and fifth of Aṣoka's list as representatives of these lesser States resulted probably from a reminiscence of the greatness of the celebrated Pyrrhus (the father of Alexander of Epirus), and of the intimate connexion between the Ptolemys and Magas of Kyrene,[2] of which Aṣoka may well have heard through the Greek embassies to his father, Bindusára. But it is unlikely that Aṣoka heard in 258 B.C. of the death of Magas in that year; and so unimportant had Alexander of Epirus become at the close of his life, that the date of his death is uncertain, and can only be approximately placed in 254, some thinking that it took place as early as 258. The language of the Edicts is, therefore, not inconsistent with their having been composed two or three or even more years after 258, which would bring down the date of Aṣoka's coronation a corresponding number of years after 270 B.C.

93. These considerations, however, are sufficient to show that the Indian tradition of the length of the interval between Chandragupta's and Aṣoka's coronations are not incorrect; and that we cannot be far wrong, on the double ground of the Greek notices of Chandragupta and of the Aṣoka Edicts, in placing the latter in or about the year 265 B.C.—say, for certain, between 260 and 273 B.C. That this date is at least approximately correct is sufficiently evident from

[1] Compare also the second edict of Girnar; of which the best text will be found in Kern, Jahrtelling, etc., pp. 89 and foll. This is, of course, only a royal boast.

[2] Magas was a step-son of Ptolemy Soter, being the son of his accomplished and beautiful wife Berenike by a former husband. Magas conquered Kyrene with an Egyptian army (B.C. 308), and was at first only Viceroy under Ptolemy Soter, whose daughter he married; but on Soter's death in 280, he asserted his independence, and even fought against Ptolemy Philadelphus. On peace being concluded, the daughter of Magas, also called Berenike, was betrothed to Ptolemy's son Euergetes.

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the consensus of scholars on the point. Professor Lassen estimated it at 263 B.C.;[1] Professor Max Müller at 259 B.C.;[2] Professor Westergaard places it either in 264 or in 268 B.C.;[3] while Professor Kern makes it 270 B.C.[4]

94. The Ceylon chronicles, however, place that event, as we have seen above (§ 89), in the year corresponding to 325 B.C. of our era; they are therefore certainly in error to the extent of 60 years or thereabouts. We have discovered this error by a comparison with European history; but it is instructive to notice that it might also have been discovered, if not so accurately corrected, by a careful study of the Ceylon chronicles themselves. We find, namely, in the period between the accession of Devánampiya Tissa, the contemporary of Aṣoka, and the accession of Duṭṭha Gámiṇi in 161 B.C., some very curious details. Tissa himself is said to have reigned 40 years, and after his death three of his brothers reign successively for just ten years each; two Dravidian usurpers then reign for 22 years; and after them a fourth brother of Tissa's for just ten years more. The latter commenced his reign therefore 92 years after the death of his father, Muṭa Síwa; and as the latter had reigned for 60 years, we have only two generations to fill up a period of 162 years! After the fourth brother another Dravidian usurper reigns for double 22, that is 44 years; and to make it quite sure that we have not misunderstood Mahánáma in these numbers, it should be added that he himself gives the sum of these reigns at 146 years,[5] which is the correct total of the above numbers.

95. But not only is this period on the face of it incorrect, and incorrect by being too long; the very chronicle, by the details which it gives, points out one way in which the mistake may have, partly at least, arisen. It states that Mahinda and his sister Sanghamittá were admitted into the Buddhist Order of Mendicants in the sixth year of their father Aṣoka's reign,[6] and were then respectively 20 and 18 years old;[7] that they came to Ceylon $12\frac{1}{2}$ years afterwards; and that they died there at the ages of 60 and 59, in the eighth and ninth years respectively after Devánampiya Tissa's death.[8] It follows that Mahinda was $32\frac{1}{2}$ years old when he came to Ceylon; and that he lived in the island $27\frac{1}{2}$ years, of which eight years were subsequent to Tissa's death. Tissa died therefore $19\frac{1}{2}$ years after Mahinda's arrival, and he began to reign half a year before. His whole reign therefore was, according to these data, 20, and not, as given in the chronicle,[9] 40 years.

96. The manner in which the Ceylonese scholars have got over this difficulty is worthy of notice. Turnour, doubtless depending upon them, and upon the Mahávansa Ṭíká, translates the passages referring to the deaths of Mahinda and his sister as if the text had, not in the 60th and

[1] Indische Alterthumskunde, second edition, vol. ii. pp. 60–62.
[2] History of Ancient Sanskrit Literature, p. 298.
[3] Oversigt over det kongelige danske videnskabernes selskabs Forhandlinger i Aaret, 1860; p. 122 of the German translation entitled Ueber Buddha's Todesjahr, Breslau, 1862.
[4] Over de Jaartelling der zuidelijke Buddhisten, Amsterdam, 1873, p. 27.
[5] Turnour, pp. 97, 162.
[6] Mahávansa, p. 37. From page 34 indeed it would appear that this ought to be seven, not six; for Sumana was ordained in the fourth year, the building of wiháras occupied three years, and then the ordination of Mahinda took place (p. 35, last line). But see below, § 114.
[7] Ibid. p. 36.
[8] Ibid. pp. 124, 125. Turnour's rendering sixty-nine in the latter case is a mere slip.
[9] Ibid. p. 124. This discrepancy was first pointed out by Westergaard.

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59th year of their age, but in the 60th and 59th year *after their ordination*; regardless of the fact that if this interpretation be right, the correct number for Sanghamittá would be 61, and not 59 (12 years before Tissa's accession, 40 during his reign, and 9 years afterwards). But the text has distinctly 60 and 59 (*saṭṭhi-vasso* and *ekúna-saṭṭhivassá*) years old: and though the Dípavansa, in a passage referring to the same subject,[1] confirms the use of the word *vasso* in the sense here adopted by Turnour and his pandits; it is clear that we have, in these data, a confusion between the natural and what I would venture to call the spiritual age of Mahinda and his sister.

97. There is, therefore, both internal and external evidence that this period of 146 years is too long; and it must be corrected to bring it into accord with the more trustworthy information which places Aṣoka's coronation at 265 B.C. or shortly after.

98. But if the Ceylon date for Aṣoka is placed too early in the Ceylon chronicles, can we still trust the 218 years which they allege to have elapsed from the commencement of the Buddhist era down to the time of Aṣoka? If so, we have only to add that number to the correct date of Aṣoka, and thus fix the Buddhist era at 483 B.C. or shortly after. Of the answer to this question there can, I think, be no doubt. We can not: for though we have here no external evidence to guide us, the internal evidence, the very lists of the kings and priests whose reigns or patriarchates amount to the period of 218 years, gives sufficient proof that it, also, is too long. But I venture to think that in this period enough details have been preserved to enable us, from internal evidence alone, to ascertain within a few years the extent of the error, and thus to arrive approximately at the true date of Gautama's death.

99. The Dípavansa bases its chronology chiefly on the succession of Theras, the Heads or Chiefs of the Buddhist Order of Mendicants (*Thera-parampará*); and also gives chronological details regarding the succession of the Kings (*Rája-parampará*) of Magadha and of Ceylon. The Mahávansa bases its chronology on the succession of the Kings, and gives isolated details regarding the succession of the Theras. The following is the list of the Kings of Magadha as given in the Mahávansa:[2]—

[1] In Bh. xvii., where it says of Mahinda,

Paripuṇṇa-dvádasa-vasso Mahindo ca idhágato
Saṭṭhi-vasse paripuṇṇe nibbuto Cetiya-pabbate.

In Childers's Dictionary, under Vasso, the reference to the passage 'paripuṇṇa-vísati-vasso having completed twenty-one years,' should be Dickson's Upasampadá-Kammavácá, p. 4, and twenty-one is a slip for twenty, arising from the confusion between being twenty-one years old, and having completed the twentieth year of one's age. See below, § 114.

[2] Turnour's edition, pp. 10, 15, 21, tabulated on p. xlvii. Comp. Dípavansa, book v., at the end, where Kálasoka is omitted, and his ten sons made brothers of Susunága; whilst at the commencement of the same book Aṣoka is mentioned as the son of Susunága.

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KINGS OF MAGADHA.

1. Bhátiya, in whose reign Gautama was born.			
2. Bimbisára; reigned fifteen years before Gautama as the Buddha visited Rájagriha.			
	reigned 37 years		afterwards
3. Ajátasattu - - - -	,, 8	,,	before the Buddha died, and
	,, 24	,,	afterwards.
4. Udáyi-bhaddaka - - -	,, 16	,,	
5. Anuruddhaka } 6. Muṇḍa } - - -	,, 8	,,	between them.
7. Nága-dásaka - - - -	,, 24	,,	
8. Susunága - - - -	,, 18	,,	A new dynasty.
9. Káḷasoka - - - -	,, 10	,,	before the Second Council and
	18	,,	afterwards.
10. His ten sons - - - -	,, 22	,,	A new dynasty.
11. The nine Nandas - - -	,, 22	,,	,,
12. Chandagutta - - - -	,, 24	,,	
13. Bindusára - - - -	,, 28	,,	
14. Aṣoka - - - - -	,, 4	,,	before his coronation.
TOTAL - - - - -	218	years	between Gautama's death and Aṣoka's coronation.

100. We shall return to the consideration of this list presently.[1] But I would here add that Nos. 3, 4, 5, 6, and 7 are said to have each murdered their father and predecessor; and I would also draw attention firstly to the frequent recurrence of multiples of 4 and 8 in the numbers, and to the curious coincidence in the numbers assigned to the two dynasties, Nos. 10 and 11, each of which is said to have reigned 22 years; and secondly to the fact that the Sanskrit authorities have also preserved for us in the Puránas a list of the Kings of Magadha during this period, containing names identical with some of the above, but omitting others, and generally shorter in its arrangement.

101. The following is the list from the Mahávansa of the Kings of Ceylon, the numbers in brackets referring to the pages of Turnour's edition, on which the details are given :—

[1] Below, § 110.

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KINGS OF CEYLON.

1. Wijaya who reigned -	38	years	after Gautama's death (p. 53).
Interregnum - - -	1	,,	(p. 54).
2. Paṇḍu-wása Dewa - -	30	,,	(p. 58). Son of the last (p. 54).
3. Abhaya - - - - -	20	,,	(p. 63). Son of the last (p. 57).
Interregnum (Tissa, p. 63)	17	,,	(6 on p. 62; 4 on p. 63; 7 on p. 64).
4. Paṇḍukábhaya - - -	70	,,	(p. 67). Nephew of the last (pp. 56, 59, 60).
5. Muṭa Síwa - - -	60	,,	(p. 68). Son of the last (p. 67).
TOTAL - - -	236	,,	from Gautama's death to the accession of Devánampiya Tissa in the 18th year of King Aṣoka.

102. In this list we have only five Kings, each the son or nephew of his predecessor, to fill out a period of 236 years. Half that time would be a long average. Paṇḍukábhaya was 37 years old when he began to reign (p. 67; and comp. p. 58); he must, therefore, have been 107 years old when he died. He married his cousin, Suvaṇṇa-páli, before the interregnum began (p. 62); so that their son, Muṭa Síwa, must have died 147 years after his parents' marriage. To show how little these figures can be depended upon, further comment would be needless; but it is worthy of notice for other reasons also that the two interregnums amount to just 18 years—the exact difference between the total of this list and the total of the last. To obtain this number, the six years on p. 62, which elapsed before Abhaya was deposed, are nevertheless included in the second interregnum; and in the Dípavansa (book iv.), the 10th year of the Magadha King Nágadása is said to be the same as the 20th of the Ceylon King Paṇḍu, which presupposes the omission of the first interregnum. It is probable that the interregnums are an afterthought; and that the list was first arranged to fill up the period of 218 years appearing in the list of Magadha Kings.

103. Passing now to the *Thera-parampará*, it should first be noticed that a number of details regarding the Theras are dated in such and such a year of such and such a King, either of Magadha or of Ceylon; whilst other figures are given without reference to the Kings. Reducing the former, on the basis of the above lists of the Rája-parampará, to the era of Buddha, we have the following result:[1]—

LIST OF THE THERAS,

INCLUDING THE DETAILS DATED BY THE KINGS.

Name.	Date of Birth.	Date of full Admittance to the Order.	Age at full Admittance of Successor.	Length of Membership.	Age at Death.	Date of Death.
Upáli	44 Bef. B.	..	60	..	74	30 A.B.
Dásaka	14 A.B.	16 A.B.	40	50	64	80 A.B.
Sonaka	60 A.B.	59 A.B.	40	44	66	124 A.B.
Síggava	100 A.B.	100 A.B.	64	55	76	176 A.B.
Tissa	158 A.B.	164 A.B.	66	68	86	234 A.B.
Mahinda	204 A.B.	224 A.B.		60	89	285 A.B.

[1] Dípavansa; Bhánavára iv. verses 38 and foll.; Bh. v. last 30 vv.

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104. This list will no more bear examination than the last. That Siggava was admitted to full orders in the year in which he was born appears clearly on the face of the table, other absurdities are only slightly latent, and Turnour has already pointed out more than enough.[1] 'Manifestly,' says Mr. Turnour, speaking especially of the Siggava details, 'these dates also are an imposition.' It does not seem to have occurred to him that his own mode of calculation (on the basis just referred to) might possibly, seeing that it came to so absurd a conclusion, be the cause of the absurdity. Let us, however, try how the list looks if we leave out all those dates which depend on the lists of Kings, and take only those data which are stated absolutely without any reference to the Rája-parampará. We shall then have from the Dípavansa the following

LIST OF THE THERAS,

INDEPENDENT OF THE LISTS OF KINGS.

Name.	Age when he admitted his successor to full Membership.	Age when he died.	No. of years he was full Member of the Order.	Years during which *both* he and his Successor were full Members of the Order.	Years of his full Membership *before* his Successor's admission to full Membership.
Upáli	60	74	..	..	..
Dásaka	45	64	50	19	31
Sonaka	40	66	44	26	18
Siggava	64	76	55	12	43
Tissa	66	86	68	20	48
			217		140
Dásaka was admitted to full Membership - - - - - -					16 A.B.
The Second Council was in the twelfth year of Mahinda's full Membership					12
Date A.B. of Aśoka's Council - - - - - - - - -					168
					18
Date A.B. of Aśoka's coronation - - - - - - - - -					150

105. Only the data of the former three of these five columns are actually found in the Dípavansa; the two latter being calculated from them. The text, for instance, says that Sonaka was 66 years old when he died; that he had then been ordained to the *upasampadá* degree for 44 years; and that he was 40 years old when he received Siggava into full membership,—or, in other words, when he, at the *Upasampadá Kammavácá*, or Ordination Ceremony, at which Siggava received the *upasampadá* degree, filled the position of *upajjháya* or superior. It follows that for the remaining 26 years of his life both he and Siggava were full members of the order, and that 18 years had elapsed since he himself had received the *upasampadá* ordination, Dásaka then acting as *upajjháya*. In the same way it is found that 31 years elapsed between the ordination of

[1] Journal of the Bengal Asiatic Society, vol. viii. pp. 919–933, v. and especially 923. Turnour's MS. was incorrect in some places. Thus, in the numbers which concern us here, 17, at p. 929, line 22, should be 14; 5, at p. 930, line 4, should be 55; and 80, at p. 930, line 25, should be 86, according to the MS. of the Dípavansa presented by the King of Burma to the Colombo Government Library, the best MS. of the Dípavansa I know of.

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Dásaka, in the 16th year after Gautama's death, and the ordination of Sonaka; 43 years between the ordinations of Siggava and Moggali-putta Tissa; and 48 years between those of Tissa and Mahinda. These figures added together make 156 (16+31+18+43+48) for the number of years which elapsed, according to this Thera-parampará, between Gautama's death and the ordination of Mahinda; and Mahinda having been ordained in the 6th year after Aṣoka's coronation, it follows that the dates 150 A.B. for that event, and 168 A.B. for the Council of Patna, are the only dates consistent with this list.

106. It will thus be seen that *the very oldest of the Ceylon historical books gives numbers which only allow for* 168 *years having elapsed between the death of the Buddha and Aṣoka's council, and for* 150 *years between the death of the Buddha and Aṣoka's coronation.* But the same book (Dípavansa, 9th canto, last lines) says that the council was held 236 A.B., so that the coronation was 218 A.B. Which, if either, of the two dates is the correct one?

107. There can be no doubt, I think, but that the shorter period is, at least, the more correct; for, quite apart from the lists of Kings, and judging only from the list of Theras, the number of Theras succeeding one another is not long enough to fill out 236 years, whereas they could well have occupied the shorter period. We have seen also above that the lists of Ceylon Kings cannot possibly fill out the whole of the 236 years; and though the list of the Magadha Kings contains nothing which would show, from internal evidence alone, that it is too long; it is longer than the corresponding list preserved by the Brahmin authorities.

108. The shorter period must therefore be held to overrule the longer one; can it also be considered as itself correct? To this the answer can only at present be given on a balance of probabilities. To me it seems very natural that Mahinda, the son of Aṣoka, should have taken for his *upajjháya*, or superior, the most influential and important Thera in the Order; and that the names of *his* superiors and teachers, and of *their* superiors, should be well known. It is also not at all improbable that the ages of these men at their death should have been remembered, since it is an important part of the recognized service at the admission to the *upasampadá* degree, that the ages of the candidates should be then recorded; and by that record the monk's precedence, at every subsequent meeting of the Order, is determined.[1] The evidence is not, therefore, in favour of these numbers having been invented, like those of the list of Ceylon Kings; but rather the contrary. On the other hand, however, they may, of course, contain mistakes; one figure at least which would affect our result must be considered unreliable until better MSS. shall enable us to correct the existing text;[2] and concerning one figure which would not affect the result there are various readings in the MSS.[3] From Mahinda's time to that of the author of the Dípavansa there was an unbroken succession of teachers and

[1] Dickson's Upasampadá Kammaváchá, p. 5, and p. 14, note *e*, of the separate edition, or J.R.A.S., June, 1873.

[2] The length of Dásaka's upasampadáship (50 years) is inconsistent with the age at which he died (64 years). It cannot be more than 44, as he must have been 20 years old when he was ordained. There must be an old error in the number 50, but the error cannot be large.

[3] The age of Tissa at his death is given twice, by all MSS. except one, at 80; but in one passage our best MS. reads 86 (Díp. Bh. V. vv. 86, 98. (See above, note 1, § 104.) As he was 66 in the 6th year of Aṣoka, and died in the 26th, this last must be right. But the interval of twenty years between Mahinda's ordination and Tissa's death (the important figure for our calculation) is independent of the verses cited.

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students, of writers and readers. The works composed during the interval are only known to us through Buddhaghosha's commentaries which took their place, just as in Ceylon the Mahávansa took the place of the Dípavansa. The latter has only been preserved to us by the fortunate chance that when Buddhaghosha left Ceylon for Burma, the Mahávansa had not yet been written; all the Ceylon MSS. of the Dípavansa being derived mediately or immediately from Burma. And as, if it had been lost, we should have known of it only from the Mahávansa, so we know the names only of the different commentaries and treatises which existed before Buddhaghosha; such as the Andha Aṭṭhakathá, the Mahá Aṭṭhakathá, the Múla Aṭṭhakathá, the Mahá Paccarí, the Kurundi, the Budha Aṭṭhakathá, the Saṅkhepa Aṭṭhakathá, etc. These, however, are enough to show that the Thera-parampará had every chance of being carefully preserved during the period between Mahinda and the author of the Dípavansa. At the present stage of our discussion we may conclude, I think, that we have in this list the actual names of the Thera-parampará from Gautama to Mahinda; whether the aggregate period assigned to them can be taken as correct, we shall be better able to judge after some further remarks.

109. If the names, to say nothing of the numbers, of the succession of Theras recorded in the earliest Ceylon histories are consistent only with a shorter date, how is it that the authors of those books have made the mistake which certainly lies in the dates 236 A.B. and 218 A.B., assigned in them to the Council of Páṭaliputra, and to the coronation of Aṣoka? This is, of course, very difficult to answer; for while the number of ways in which a right calculation can be made is limited, the number of ways in which a mistake may be made is very large. Still some light may be thrown, I think, even on this.

110. The larger date is 218 A.B., the shorter 150 A.B. The difference is 68 years. Now in turning back to the list of the Kings of Magadha, the reader will discover the curious coincidence that the reigns of the Susunága dynasty amount in the aggregate to just 68 years. 'That may be only chance,' says the careful reader. Very good: but on examining the list of Ceylon Kings he will find precisely this period of 68 years re-appearing from the beginning of one interregnum to the end of the other. It is a very strange chance that this particular period should stand in *both* lists divided by clear and distinct lines from the rest of the chronology. But this is not all. We have no other list of Ceylon Kings with which to compare ours; but we have another list of the Magadha Kings drawn up from Hindu authorities, by Professor Wilson in his edition of the Vishnu Purána.[1] In the Hindu list we find the very Susunága dynasty referred to in the last paragraph *separated* from the other names, and placed *before* the rest of the Kings corresponding to those in the Ceylon list.[2] And, finally, if we treat the Ceylon list in a similar manner, and place the Susunága dynasty before the others, we obtain a new list remarkably in agreement with that of the Puránas.

[1] Vishnu Purâna, pp. 466 and foll.; or vol. ix. pp. 180-188 of Fitzedward Hall's edition of Prof. Wilson's works.

[2] The same dynasty is also omitted in the Jain lists given by Dr. Bühler (*Indian Antiquary*, Dec. 1873, p. 363), but as that list also omits all the other kings down to the Nandas, it does not throw any light on this question.

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The correctness of this statement will, perhaps, be most easily proved, by arranging the lists in parallel columns—an arrangement which will also throw light on the forms of several of the names.

List of the Magadha Kings from the Puránas.[1]

	Váyu	Matsya.
Ṣiṣunága	40	40
Kákavarṇa[2]	36	36
Kshema-dharman	20	36
Kshatra-ujas[3]	40	36
Bimbisára	28	28
Ajátaṣatru	25	27
Dharbaka[4]	25	24
Udayáṣva[4]	33	33
Nandi-vardhana	42	43
Mahá-nandin	40	42
Nanda and his son	83 and 12	
Chandragupta	24	..
Vindusára	25	..
Aṣokavardhana	4	..

List of the Magadha Kings from the Ceylon Chronicles (re-arranged).

Susunága	18
Kálasoka[2]	28
His ten sons together	22
Bhátiya[3]	10
Bimbisára	52
Ajátasattu	32
Udaya-bhadraka[4]	16
Anuruddhaka, Muṇḍa	8
Nágadásaka	24
9 Nandas	22
Chandagutta	24
Bindusára	28
Dhammásoka	4

111. If the Páli and Sanskrit lists had been derived from similar sources, and the Páli one afterwards altered, by a change in the relative position of the first three items in the above list, in order to make the interval between Gautama's death and Aṣoka's coronation longer by 68 years, all the above coincidences would be explained. Now it will have been noticed that the last two columns in the table above (§ 104), from which we obtained the shorter date, are calculations not found in the Dípavansa. Is it possible that the Ceylon chronicler should have forgotten to make those subtractions? *In other words, that they added up not the years which elapsed between* each ordination and the next, but the years during which each Thera was full member of the Order (*upasampanno*); forgetting that *in the earlier part* of each Thera's upasampadáship the previous Thera's upasampadáship *was still running.*

112. We have seen above (§ 96), that a similar confusion was actually made between the natural and the spiritual ages of Mahinda and his sister; and there is another consideration that strongly supports the probability of this mistake having been made. While each of these Theras did actually receive upasampadá, and the date of his having received it was carefully recorded, none

[1] The Puránas from which this list has been made are the Vishnu, Váyu, Matsya, and Bhagavata Puránas. They agree in the number and order of the kings, but differ slightly in several of the names. Only the above give the lengths of the reigns. I have followed the forms of the names adopted by Lassen in his Indische Alterthumskunde, vol. i. p. xxxiii, and vol. ii. p. 1207.

[2] Both kákavarṇa and kála mean "black." It is quite impossible with Kern, Jahrtelling, p. 4, to take the latter in the sense of 'chronological.' See Childers's Dict. under "Káḷo," and p. viii, note 4; Westergaard, p. 126. It is the latter, not the former, part of the name which has been changed.

[3] The Sanskrit form suggests the reading Khattiya; but the above form occurs not only in Mahávansa Tíká (T., p. 10), but also in the Dípavansa, canto iii.

[4] The Páli name corresponds here to the two Sanskrit ones. Of these, Dharbaka, a form found nowhere else, is probably metathesis for Bhadraka; and the aṣva of Udayáṣva does not appear in the Matsya Puráṇa.

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of them in point of fact can have become Chief of the Vinaya, or Chief of the Order, in any patriarchal sense; and even the date of 218 A.B. for the coronation of Aṣoka is derived from adding up, not the years of their chiefship of the Vinaya, but the years of their upasampadáship. Yet during the whole account great stress is laid on the fact that each of these Theras was *Vinaya-pámokkha*, which has all the while nothing to do with the chronology. Now the Primacy of each Thera, unlike his upasampadáship, would have begun where the last one ended; so that if a confusion had been made between the two, the mere addition of the numbers, without subtraction, would have followed as a matter of course. The chronicler would then have argued thus: Tissa is Mahinda's superior (*upajjháya*), Siggava was Tissa's superior, and so on back to Gautama; if I add together the years of upasampadáship of these superiors back to Dásaka, who was alive when Gautama died, I shall find out the full time that has elapsed since Gautama; but Mahinda was not ordained at the time of Aṣoka's coronation, so I must leave him out. He would then have *added up the third column* in the table at § 104 *instead of the fifth*; and would have concluded that 217 years had elapsed between the time of Gautama and Aṣoka's coronation.

113. It is not a sufficient objection that this would have been too foolish to be possible. If not this, then the chroniclers made some other mistake as bad or worse.[1] May the writer venture to ask, was not the reader somewhat puzzled at first sight by the headings of the columns in the table at § 104? For himself, the writer is willing to confess that he does not find the argument they contain by any means so simple as it is undeniable; and if further proof were needed, it would be found in the fact that it does not seem to have occurred to Mr. Turnour, or Professor Westergaard, or Professor Kern.

114. A more valid objection seems to be, that the mistake would then have been 67 instead of 68 years, as we have found that it actually was. But this does not follow. Moggali-putta Tissa was ordained in the fourth year of Aṣoka.[2] At a festival three years afterwards Aṣoka determines on the ordination of Mahinda;[3] yet immediately afterwards it is said that Mahinda was ordained in the sixth year of Aṣoka.[4] So again, though the coronation of Aṣoka had been fixed in the year 218 A.B., and the Council of Patna in the 17th year of Aṣoka,[5] yet the Council is placed in 236 A.B. Once more, an event placed in the 16th year of King Bimbisára is in the following sentence said to have happened when 15 years of his reign had elapsed.[6] Again, in the same page of the Mahávansa it is said that Bimbisára reigned 37 years 'after his conversion,' but in the Sinhalese authorities, from which Spence Hardy drew his account, the same thing is meant when it is said that 'he rendered assistance to Buddha during 36 years.'[7] This last instance

[1] The mistake may also have arisen from the confusion between Káḳavarṇa and the Aṣoka under whom they place the 2nd Council: but there are many difficulties in working out this explanation. The confusion seems to me a result, not a cause, of the mistake; and it is a confirmation of my view that Táranátha, the Tibetan historian, while placing the Council, like every one else, under an Aṣoka, says that the assembled monks were fed by Nanda (p. 41). According to my rectification, the 2nd Council falls under Chandragupta. It is a very common error to suppose this Council unknown to Northern Buddhists. The question is too long to be discussed in a note, but see my '*Buddhism*,' pp. 215 to 221, and 226.

[2] Mahávansa, p. 34. [3] Ibid. pp. 34, 36.

[4] Ibid. p. 37. [5] Ibid. p. 42. [6] Ibid. p. 10.

[7] Hardy's Manual of Buddhism, page 193; and compare Bigandet's 'Life or Legend of Guadama,' p. 249.

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explains the way in which these differences of one year, which are not infrequent, have arisen; and if our calculators had once concluded that 217 years had elapsed between the death of Buddha and the coronation of Aṣoka, they would also have expressed the same thing by saying that it took place in the 218th year after that event. A difference of one year would not therefore be a discrepancy fatal to the proposed explanation; but even this slight difference depends on our placing the Council in the 18th year of Aṣoka according to the more numerous authorities. As has been just pointed out, the Mahávansa itself places it, in one passage, in the 17th year of his reign; and if we had used 17 instead of 18 in our calculation, there would have been no discrepancy at all.

115. The foregoing examination would seem to show that the persons who first calculated the dates 218 and 236 A.B. (perhaps the earlier chroniclers themselves) had as data to work upon the tradition regarding the succession of the Kings of Magadha, and the tradition regarding the succession of Theras from Gautama to Mahinda (including the numbers in the table in § 104)—traditions which had been brought by Mahinda to Ceylon. They had also certain details regarding the succession of Kings in Ceylon, including the names, but probably not the numbers, given in the table at § 101. It is almost certain that they had not before them the numbers given in the table at § 110 from the Váyu and Matsya Puránas. In reckoning backwards *they used the Thera-parampará*; and in doing so they made some arithmetical blunder—very likely the blunder I have suggested; and thus carried the dates further back than the very numbers before them, which they have fortunately preserved, would rightly warrant.

116. Either they themselves, or some later chronicler,—for the chronology preserved to us is probably due to more than one mind,—then noticed the discrepancy between the dates thus wrongly derived from the Thera-parampará, and those of the Rája-parampará of Magadha. They concluded that the latter, to them the less sacred of the two, must be wrong; and they accordingly harmonized the two lists by bringing the Susunága dynasty down into that part of the list embracing the period to which the dates 218 and 236 refer.

117. Before the Dípavansa was written also, the belief in the curious tradition, of which no trace is found in the Parinibbána Sutta, assigning the date of Wijaya's landing to the exact time of Gautama's death,[1] must have become fixed. It followed that from that time to the accession of Devánampiya Tissa 236 years must have elapsed; and the Rája-parampará of Ceylon was brought into agreement with that belief by assigning to the Kings whose names had been handed down reigns of the length whose impossibility has been fully shown above (§ 102); regardless of the fact that the number of reigns was quite insufficient for the purpose. It is possible that this belief was due simply to the desire of bringing the dynasty of the pious Devánampiya Tissa into immediate connexion with the founder of the Buddhist religion; it is possible also that the tradition depended partly on a fact, namely, that the colonization of Ceylon by the Aryans really took place about as long before the time of Devánampiya Tissa

[1] Mahávansa, p. 47. Dípavansa Bhánavára ix.

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as the chroniclers supposed Gautama to have died. In the former case the names of Wijaya's successors may have been correctly preserved, and the numbers only be wrong; in the latter case the list of names also would be incomplete, and the record would only have preserved the memory of isolated, not consecutive, events during the period in question. This seems the more probable; but it is scarcely necessary for our argument to examine more minutely into this question here. It is sufficiently evident from the details given that the numbers at least are untrustworthy, and that the story of Wijaya himself is in great part legendary.

118. It may be suggested that, if the above conclusions as to the relation between the Rája-paramparás and the Thera-parampará be correct, the later Páli chronologists must have soon seen that the short list of six Theras was scarcely consistent with the long date which had then become part of the Ceylon chronology: and further that as they corrected the other lists of names to agree with that date, so also they would have corrected the list of Theras to bring it into harmony with the longer period. Now it is true that I can nowhere find the list given in the Dípavansa distinctly questioned, and the Mahávansa gives the same names as the Dípavansa; but it is at least curious that a corrected list is, in fact, found in the *Madurattha Vilásiní*,[1] a commentary on the Buddhavaṅsa attributed by Turnour to Buddhaghosha.[2] M. Barthelémy St.-Hilaire thinks the tone of this work not quite the same as that of the other commentaries known to be by Buddhaghosha, and concludes that the work was certainly not written by him; adding, on the authority of M. Grimblot, that it was written in a town in the Dekhan, at the mouth of the Kavéri.[3] However this may be, it is stated in the Madurattha Vilásiní that the Buddhavaṅsa, one of the Pitaka books, was 'perpetuated' or handed down from the time of Gautama to the Council of Patna 'by the generation or unbroken succession of the Theras (*i.e.* Thera-parampará). This is the succession: Sáriputto thero, Bhaddaji, Tisso-kassa-putto, Siggawo, Moggali-putto, Sudatto, Dhammiko, Sonako, Rewato.' This list, it must be confessed, looks exceedingly like a modification of the list found in the Dípavansa; for each Thera would naturally have been ordained from 25 to 30 years before he ordained the next on the list, and an average of about 26 years for each would just make up the 236 years required by the longer chronology.

119. There is only one other question on which a few more words must be said: the question, namely, whether the shorter dates of 150 and 168 years are any more trustworthy than the longer ones of 218 and 236 years, thus found to be incorrect? In other words, were the data before the chroniclers of such a character that, even if they had not made the blunder of 68 years now so clearly evident, they *could* have drawn a right conclusion from them. In addition to what has been said above (§ 108) on this point, it will be necessary, in order to answer this question, to answer another; whether, namely, the Thera-parampará given at § 104 contains, like the Rája-parampará, any inherent impossibilities.

[1] Turnour's analysis of this commentary in the Journal of the Bengal Asiatic Society, vol. viii. p. 791 (p. 19 of the separate reprint).
[2] Ibid. p. 789, or p. 17.
[3] Journal des Savans, Janvier, 1866, p. 55.

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120. Firstly, then, it should be noticed that, were the numbers at § 104 altogether lost, we should still draw the conclusion from the list of names alone that about a century and a half must have elapsed between the death of Gautama and the accession of Aṣoka. By the rules of the Order no one could be ordained until he had completed his 20th year;[1] his *upajjháya* or superior would naturally be one of the older monks, who had been ordained 30 years or more before; we have four such intervals, and have to add 16 years for the time which is said to have elapsed between Gautama's death and Dásaka's ordination, and 12 years for the interval between Mahinda's ordination and Aṣoka's accession. This would give us a total of about 148 years. If we take the somewhat similar case of a clergyman of the present day, and trace back from the bishop who ordained him to the bishop who ordained that bishop, and so on back through four steps of the ecclesiastical succession, we should find that a similar period had elapsed.[2] There is, therefore, nothing improbable in the total of 150 years.

121. Neither, with one exception, is there any inconsistency or improbability in the details of the numbers preserved to us. It will be seen that Dásaka is said to have been *upasampanno*, i.e. full member of the Order, for 50 years, and to have been only 64 when he died. This is inconsistent with the rule referred to in the last paragraph, according to which he cannot have been 14 years old when he was ordained. If we read any number below 44, say 40, for the 50 given above, this inconsistency would be remedied; and it is possible that better MSS. will show the existence of an old error in this number, as they have already enabled us to correct some of the others. Meanwhile I do not propose any alteration, and merely note the fact that this error of from 6 to 10 years is the only error in the details apparent from the evidence before us. As there is no improbability in the total, there is therefore no reason to compel us to reject it as, to a greater extent than six years, necessarily wrong.

122. By the argument above we have concluded that the date of Aṣoka's coronation must be fixed about 265 A.D. or shortly after; say certainly between 260 and 273. We have now concluded that the details given in the Dípavansa fix the death of Gautama at 140–150 years before that event. By adding the two numbers together we obtain an approximate result of between 400 and 423 B.C. (say a few years more or less than 412 B.C.) for the date of Gautama's death, according to the oldest Ceylon authorities—a result nearly as useful, for most historical purposes, as if it could be fixed to a single day.

123. This final conclusion is not without support from some of the most trustworthy of the Northern Buddhist authorities. To them Kanishka occupies the place of Aṣoka, and Kanishka's Council has the importance which the Council of Patna has for the Southerns. Some of the Tibetan books consulted by Csoma place the Council at 400 years after the Buddha's death;[3] and Hiouen Thsang, the learned Chinese Pilgrim, says that Kanishka ascended the throne about 400 A.B.[4]

[1] Upasampadá-Kammaváca, ed. Dickson, pp. 4, 10.

[2] In the list of Jain Theras, the fourth after Sudharma, himself ordained by the Mahávíra, is said to have died 146 years after Vardhamána. Stevenson's Kalpa Sútra, p. 100.

[3] Csoma Körösi, Asiatic Researches, vol. xx. pp. 92, 297. Compare J.B.A.S. vol. vii. p. 148.

[4] Stanislas Julien's translation, Mémoires sur les contrées occidentales, vol. i. p. 172.

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It is acknowledged that Kanishka began to reign about the commencement of our era,[1] and he held his council some years later. These statements would therefore make the Buddhist era about 400 B.C. But the number 400 used in them is a round number, we do not know the data on which these traditions are founded, and I cannot cite them as at all conclusive.[2] I have also endeavoured to arrive at some conclusion on the basis of the Jain era, but have only been able to reach negative results of very little value. The most common date for the Jain era, dating from Vardhamána's death,[3] is 527 B.C.; but I cannot find how old this tradition is, or how early the era was used, or on what calculation it is based. I am convinced that Vardhamána and Gautama, the Buddha and the Mahávíra, are not, as some have supposed, the same person; and I do not think there is yet sufficient proof for Colebrooke's and Stevenson's opinion that Siddhártha Gautama is the same as Indrabhúti Gautama, the pupil of Vardhamána. It is only certain that the Niganṭhas, a sect referred to in the Pitakas, and of which the Jains are the modern representatives, existed as early as the Buddhists; and that a complete discussion of the earliest Jain books would throw great light upon the period in which both originated.

124. SUMMARY. 1. Of the numerous dates assigned by different writers of the Northern and Southern schools, to the death of Gautama, we can only test one,—that given by the Ceylon chroniclers, which place it in 543 B.C. (§§ 83–86).

2. This date is found to be arrived at by adding to the date 161 B.C., at which the accession of Dushṭa Gámaṇi is fixed, two periods of 146 and 236 years, making together 543. The former is the period from Devánampiya Tissa, whose accession is thus placed in 307 B.C., to Dushṭa Gámaṇi; the latter is the period between the death of Gautama and the 18th year after King Aṣoka's coronation, which is the year of Devánampiya Tissa's accession (§§ 87, 88).

3. The first date, 161 B.C., is correct. But the period of 146 years is certainly too long by about 60 years; as Aṣoka's coronation can be fixed, through his own relations and those of his grandfather Chandragupta with the Greeks, at within a few years of 265 B.C. (§§ 89–97).

4. The other period of 236 years is also open to grave doubt. The successions or lists of Kings (*Rája-parampará*) in Magadha and Ceylon, which support it, are found by criticism to be untrustworthy (§§ 99–102).

5. In the oldest Ceylon Chronicle, the Dípavaṅsa, is found a list of successive Theras (*Thera-parampará*) from Gautama to Aṣoka's son Mahinda, which also seems, at first sight, to be full of incredible statements. On further examination, however, it is found to give figures, not necessarily untrustworthy, which give dates 150 A.B. for Aṣoka's coronation, and 168 A.B. for the Council of Patna and the introduction of Buddhism into Ceylon in the first year of

[1] Lassen, Indische Alterthumskunde, vol. ii. p. 848 (2nd ed.).

[2] The different Burmese eras given by Bigandet, Life of Gaudama, 2nd ed. p. 380 (comp. pp. 323, 347, 361), are calculated on the ordinary one derived from Ceylon, after the dates 218 and 236 had become fixed.

[3] Prinsep in his 'Useful Tables' gives another era, 569 B.C., which dates apparently from the time when Vardhamána became an ascetic. The possibility of some similar confusion in Buddhist computations should not be lost sight of; especially as, according to the earliest use of the word, the Buddha certainly attained Nirvána under the Bo-Tree, that is to say, 45 years before he died (see my 'Buddhism,' pp. 111, 116).

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Devánampiya Tissa's reign. These figures also afford an explanation of the mistake by which the longer dates could have been reached; and enable us to harmonize the Hindu and the Ceylon lists of Kings of Magadha, while they throw unexpected light on the figures of the native list of Ceylon Kings during the same period (§§ 103–118).

6. These considerations have at least advanced the question of the Buddhist era one step nearer to solution. But they can hardly as yet be considered to do more; for it is a long step from saying that the succession of Theras is not necessarily untrustworthy, or even that it is probably correct, and saying that it is entirely conclusive. It is reasonable to hope that the publication of the three *Piṭakas*, and of the commentaries on them, will throw further light on this important point; meanwhile it is at present abundantly clear that the earliest possible date for Gautama's death is 218 years before Aṣoka's coronation, or in other words, between 478 and 491 B.C.; but that this date is very uncertain, as the details which make up this sum of 218 years are unreliable. And it is further clear that, if the Thera-parampará in the Dípavansa can be depended upon—which, within a few years, it probably can—the death of Gautama took place more than half a century later. In that case, by adding the period of 140–150 years to the correct date of Aṣoka's coronation, namely 260–273 B.C., we arrive at the approximate date for the commencement of the Buddhist era between 400 and 423 B.C., or say within a few years of 412 B.C. (§§ 119–123).

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SUPPLEMENTARY NOTE ON THE SAHSARÁM AND RÚPNÁTH EDICT.

Just as this Part of the 'Numismata Orientalia' was on the point of being sent to press, the number of the *Indian Antiquary* for June, 1877, has come to hand, containing Dr. Bühler's learned and ingenious paper on the newly-discovered Edict, which he assigns to Aṣoka, and which he interprets as giving the number of years between the time of Gautama's death and the date of the Edict.

The Edict has been found in three places; at Sahasrám, Rúpnáth, and Bairát. It commences by saying that DEVÁNAMPIYA had been an *upásaka* for more than 32½ years without exerting himself strenuously; but that since a year and more he had entered the Society *(Saṁgha)*. Further on it quotes a saying or doctrine *(sávana)* inculcating strenuous endeavour, and states that this doctrine was preached by the *Vyuṭha* or *Vivutha;* and it then adds a number. As the texts differ slightly, I give, in full, the words of this last and most important sentence:

Sahasrám. *Iyam cha savane vivuthena duve sapaṁnálátisatá vivuthá ti* 256.[1]

Rúpnáth. *Vyuṭhena sávane kata* 256 *satavivásáta.*[2]

Dr. Bühler's rendering of the sentence from the Sahasrám text is: 'And this sermon (is) by the Departed. Two hundred (years) exceeded by fifty-six have passed since;' and of the sentence from the Rúpnáth text is: 'This sermon has been preached by the Departed; 256 (years have elapsed) since the departure of the Teacher.' The corresponding sentence in the Bairát copy is unfortunately quite illegible.

It will be seen that the whole edict taken together is quite ambiguous; each text gives the same number of years[3] as having elapsed from a certain event to the time of the edict; but while that event, in the Sahasrám text, seems to be the preaching of the doctrine referred to, in the Rúpnath text it is the 'departure of the Teacher.' The name and rank of the speaker, the nature of the religion to which he belonged, and the name of the Preacher or Teacher whose words he purports to quote, are left to be inferred. Even the figures supposed to represent the number 256 differ in the published facsimiles of the two different texts in which they occur; but this is of minor importance, for in the Sahasrám text the figures are accompanied by words which can mean nothing else.

This complete ambiguity is the more vexatious since the determination of any one of the doubtful points would enable us, with tolerable certainty, to determine the rest; and thus to obtain an authority for Indian chronology older and more authentic than any, except the Greek notices of Chandragupta, which we yet possess. It is not, therefore, a matter for surprise that eminent scholars should have been tempted, on what seem insufficient grounds, to resolve the doubt. Dr. Bühler argues that *Vyuṭha* or *Vivutha*, meaning 'the Departed,' is a name which suits the Buddha very well; that *Sata*, meaning 'the Teacher,' certainly refers to him; that *Vivása*, 'Departure,' means death; and that, therefore, the edict is dated from the death of the Buddha. Further, that *Devánam piya*, meaning 'Beloved of the Gods,' is a royal title, analogous to our 'By the grace of God,' or the Roman 'Augustus'; that we know of no Indian princes who made any great efforts for Buddhism in the third century after the Buddha's death besides Aṣoka and his grandson Daṣaratha; that it is not known that the title Devánam piya, or the alphabet of these inscriptions, were used by any one but the princes of Aṣoka's dynasty, their subjects and contemporaries; and that Daṣaratha cannot be the author of the inscriptions, as he reigned only seven years. Finally, therefore, that the edict is Aṣoka's, and that it dates the death of Buddha 256 years

[1] *Savana* is a mistake for *sávana;* and *paṁnála* for *paṁnáha* or *paṁnása.*

[2] *Vyuṭhená* is a mistake for *vyuṭhena;* and Dr. Bühler reads *kate*, that form being required to agree with *sávane.*

[3] The word years is not mentioned, which is perhaps strange; but no other substantive can be understood in both texts.

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before the 34th year after Aṣoka's conversion to Buddhism; and this conversion having taken place in the 8th year of his reign, commencing between 261 and 273 B.C., the date of Gautama's death is thus fixed between 483 and 471 B.C.

If only the first three steps of the argument were indisputable, the rest would certainly follow; but, as I have already pointed out in the *Academy* of July 14th, if *Sata-vivása* is taken to be a Buddhist expression, and to stand for a suggested Páli *Satthu-vivása*, it would mean not 'the death of the Teacher' (for which *Parinibbána*, or one of its well-known synonyms, would almost certainly have been used), but 'the Teacher's abandoning his home to become an ascetic'; *vivása* thus standing for *nekkhamma*. For *vasati* means to live at a place, not in the sense of being alive there, but in the sense of dwelling there; and *vivása* would mean the going away from home, the giving up of fixed family life, that abandonment of the world which Buddhists and Brahmans alike hold a necessary preliminary to the highest religious life.[1] As this step in the Buddha's career, which the Buddhists call 'the Great Renunciation,' took place in the 52nd year before his death, the edict, if really Aṣoka's, and if speaking of the Buddha as 'the Vivutha,' would place the Buddhist era between 431 and 419 B.C.

This result would be strikingly near to the conclusion reached above; but though I was at first inclined to accept, doubtfully, this interpretation of the edict as the most probably correct, I scarcely think that we can go even thus far with Dr. Bühler. For just as *parinibbána* would be the natural expression for the death of a Buddha, so *nekkhamma* or *abhinikkhamana*, and not *vivása*, would be the natural expression for the Great Renunciation; and I cannot understand why, in an edict of this kind, the usual word should have been displaced by one that may indeed exist, but has not yet been found in any of the Buddhist Sanskrit or Páli texts. And, for a similar reason, I cannot believe, without further proof, that either *Vyuṭha* or *Vivutha* would have been used instead of any of the well-known epithets of the Buddha.[2]

It is indeed true that *vyuṭha*, the past participle of *vi-vas*, to leave one's home,[3] would be an epithet very appropriate to all hermits, ascetics, or members of the Buddhist Order; but it would not be peculiarly characteristic of a Buddha; and in point of fact the epithet is not found in Páli writings, in which the idea has found another and common expression in the cognate words *anagári*, *anágáriya*, *anagárika*, and *anágára*, all meaning the houseless, homeless, one, *i.e.* an ascetic.[4] *Vivutha* is, I think, as pointed out by Professor Pischel, only another form of *vyuṭha*. Dr. Bühler indeed takes both words as forms of the past part. of *vi-vart*, to turn away from, go away from; but this does not explain the aspirate, while the confusion between the dental and the cerebral *t s*, the only objection to Dr. Pischel's explanation, is amply justified by the dental form being found in Páli as against the cerebral in Sanskrit. In Sanskrit the past participle of the simple verb being *ushita*, and *vyushita* the most common form of the p.p.p. of the compound verb, yet for the latter *vyushṭa* is also used.[5] The compound verb does not occur, or rather has not yet been found, in Páli; but the past participle of *vasati* is most commonly *vuttha*, though *vasita* and *ushita* are also found. Whilst therefore the form *vyuṭha* corresponds to the Sanskrit *vyushṭa*, the form *vivutha* corresponds to a possible Páli *vivuttha*. On the other hand, the verb *vivart* makes its past participle in Sanskrit *vivṛitta*, in Páli *vivatta* or *vivaṭṭa*, and in Jain-Prákrit *viyaṭṭa*.[6] The

[1] Stevenson, Kalpa Sútra, p. 96, reconciles two apparently inconsistent dates for the Jain era by saying, 'The date here given is founded on the mistake of the abandonment of the world for death.' Böhtlingk-Roth give as the only meaning for *vivása* in Sanskrit, 'Das verlassen der Heimat, Entfernung aus der Heimat, Verbannung (intrans.).'

[2] So also Prof. Pischel, in the *Academy*, 11th August, 1877.

[3] This is the ordinary sense, with the negative force of *vi*. It also occurs, with the intensive force of *vi*, in the sense of remaining, lingering, passing time, with the accusative of the time spent; and it is in this sense that the p.p.p. is used the second time at the end of the clause in the Sahásrám text, quoted above.

[4] The same expression is used by the Jains. Dr. S. J. Warren's 'Doctor-dissertation,' Over de Godsdienstige en Wijsgeerige Begrippen der Jainas; Zwolle, 1875; pp. 24, 69.

[5] Dr. Pischel says not; but examples of this form will be found in Böhtlingk-Roth, not only from the native dictionaries, but also from the Mahábhárata.

[6] Dr. E. Müller, Beiträge zur Grammatik des Jaina-prákrit, pp. 17, 32. Dr. S. J. Warren, De Jainas, p. 29.

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point seems clear enough; but even if Dr. Bühler be right, the same argument applies, for neither *vivatta* nor *vivaṭṭa* occurs among the epithets applied by the Buddhists to their Teacher.[1]

There remains, then, of the words claimed by Dr. Bühler as Buddhist terms, only *Sata*, which he takes to be the representative of the very common Páli epithet *Satthá*, nom. case of *Satthu*, the Teacher, the Sanskrit *śástṛi*. This identification, however, presents great difficulties, even if it be at all possible. It is most difficult to believe that the final vowel could be a simple *a*, or that this word could appear in a form without the aspirate to replace the *s*; especially as this aspirate would be required also to distinguish the word from the corresponding forms of such common words as *sapta* and *satva*. Dr. Pischel proposes therefore to take *sata* for *satva* 'being, existence,' and to translate *sata-vivása* by 'departure from life' in the Jain sense. But this compound could never mean to depart from one life to go into another; it could only mean departure from existence altogether; and in either case the word *vivása* would be then out of place, and the idea would be not only more shortly but more correctly expressed by *nirváṇa*. For though the Jain system of philosophy cannot be discussed in the middle of this note, it is sufficiently clear that the Jain books at present accessible use *nirváṇa* in the sense of the death of a Jain saint; and that their nirvána is not a departure from existence at all, but either the absorption of the soul (in which they certainly believe) into the world-spirit, which is Dr. Warren's opinion;[2] or its entrance to a realm of bliss called Alokákása, which is Mádhava's statement,[3] and is confirmed by the author of the Nava Tatwa.[4] If, therefore, Prof. Pischel's derivation holds, it destroys his interpretation of the edict; and if *satva vivása* is a possible expression at all, it means going out of existence, and is a Buddhist phrase.

Saṁgha, Dr. Bühler (p. 6) acknowledges to be as much a Jain as a Buddhist technical term for their Orders or Societies;[5] and it tells even against his theory, for, if Aṣoka ever did enter the Buddhist Saṁgha, it is most strange that the Buddhist monks, who have told us so much about him, should not have mentioned this important fact. On the other hand, in abandoning *upásaka* to the Jains, he perhaps passes over an argument of some force for his view of the meaning of the edict; for whilst *upásaka* is the standing expression among the Buddhists for lay-disciples, the corresponding Jain word is *śrávaka*.[6] But in our ignorance of Jain literature it can, perhaps, scarcely be maintained that the Jains did not use *upásaka* also; just as the Buddhists also use *sávaka*, though in a slightly different sense, as a 'true hearer' of the Word. It should be added that while the Sahasrám and Bairát texts clearly read *upásake*, the Rúpnáth text is here doubtful, Dr. Bühler reading *sa(va)ki*; but the *sa* is not clear (it looks like *su*), and the *ki* is clearly *ko*, while the injured space between is so large that two letters, and not only one, must apparently be supplied.

But if there be nothing distinctively Buddhist in the inscription, Dr. Bühler's strongest argument —that the only *Devánam piya* who, in the third century of the Buddhist era, was a zealous Buddhist and reigned more than 34 years, was no other than Aṣoka himself—does not necessarily apply to this edict, and cannot be made use of to identify our *Devánam piya* with Aṣoka. That the epithet was used of other Buddhist kings, we know from the instance of the Ceylon king Tissa; and that it must have been afterwards commonly used is sufficiently apparent from the fact that in later times in Gujarát, though it is also used as an epithet of the Mahávíra,[7] its meaning had so far deteriorated that it appears in Jain writings as a common polite address; like Sir! Madam! or Gentlemen! Thus in the *Bhagavati* (13th century) by the Mahávíra to a disciple (Warren, p. 68); and in the *Kalpa Sútra* (6th or 7th century) by a Brahmán to his wife (Stevenson, pp. 27, 29); by her to him (*ibid.* pp. 26, 30); by King Siddhártha to his wife, the mother of the Mahávíra (*ibid.* pp. 54, 68); by the King to bráhmans (*ibid.* pp. 64,

[1] The use of *vivattacchaddo* in the prophecies drawn from the Buddha's personal appearance does not contravene this statement.

[2] De Jainas, p. 25, and comp. p. 94.

[3] Cowell's analysis in his ed. of Colebrooke's Essays, i. 450.

[4] Stevenson's translation in Kalpa Sútra, p. 126.

[5] It occurs in the Śatruñjaya Mahátyám; Weber, p. 38.

[6] E.g. Weber, *loc. cit.* p. 39. Warren, De Jainas, p. 25. Comp. Stevenson, Kalpa Sútra, pp. 93, 28. Wilson, Mahávíra Caritra (vol. i. p. 303 of collected works).

[7] In the Skandaka legend in the Bhagavatí. Warren, p. 67.

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68); and even to servants or messengers (*ibid.* pp. 56, 61, 76).[1] According to Prof. Kern[2] it never occurs in Sanskrit, except in the sense of foolish, idiotic; so that its meaning must have passed through a change similar to that of our words 'silly' and 'simple,' the Dutch 'onnozel,' the French 'benêt,' and the Greek 'εὐήθης.' Though, therefore, it may be granted that *Devánam piya*, at the time of the edict, was a royal title, there is no reason to believe that it was either exclusively Jain or exclusively Buddhist.

Enough has probably been said to show that the edict is not certainly and necessarily Buddhist. Dr. Pischel goes so far as to think that *Vyuṭha* or *Vivutha* is a name of the Mahávíra, the founder of the Jains; and that the prince who published this edict was a Jain, 'probably Sampadi, the grandson of Aṣoka, who, according to the Jains themselves, was a great patron of this curious sect.' In support of this view he refers to a passage in Stevenson's translation of the Kalpa Sútra (p. 95), where it is said of the Mahávíra:

'At that time he obtained emancipation, and entered on a state of freedom from passion and absence of pain. After 900 years from his departure had elapsed, and in the 80th year of the tenth hundred, this book was written, and was publicly read in the currency of the 93rd year.'

Professor Pischel, putting the words *from his departure* in italics, argues, 'Here some such word as *vivása* must be in the original.' But Professor Jacobi of Münster, whose edition of the Kalpa Sútra will appear, I hope, before Christmas in the 'Abhandlungen für die Kunde des Morgenlandes,' has been good enough to favour me with the text of the passage, which is as follows:

. . . . so siddhe buddhe mutte antagae parinivvue savvadukhappahiṇe ‖147‖. Samaṇassa bhagava Mahávírassa jáva savvadukhappahiṇassa nava vásasayáiṁ vi-ikkantáiṁ dasamassa ya vásasayassa ayaṁ asiime saṁvacchare kále gacchai | váyanantare puṇa ayaṁ tenaue saṁvacchare kále gacchai ‖148‖.[3]

The word for 'departure' is not therefore, as Dr. Pischel supposed, *vivása*; and thus the only authority supporting his interpretation of the Edict falls to the ground. It is curious that in his note to the passage Dr. Stevenson imagines the Jain era given by Prinsep as commencing 569 B.C. to be the one here used; and to be reckoned not from the Mahávíra's death, but from the time when he abandoned the world to become an ascetic; the usual date, 527 B.C., being just 42 years later than the other, and 42 years being the time said to have elapsed between the two events. But as I cannot find that the Jains ever actually used such an era, the suggestion does not throw any light upon the, perhaps, analogous expression in the Edict.

The technical terms found in the edict not being therefore, as far as can be yet ascertained, any more common to the Jains than to the Buddhists, the argument from the improbability of a Buddhist having used terms unusual to his sect would apply with equal force to a Jain. A better acquaintance with Buddhist history may remove the difficulties which seem at present inseparable from Dr. Bühler's explanation of the edict; and a better acquaintance with Jain history may clearly show that it must be ascribed to a Jain sovereign. But for the complete and certain interpretation of this remarkable historical document we must wait till our knowledge is increased by other discoveries, or by the publication of earlier Jain texts, and of the Buddhist Pitakas.

[1] On most of the above passages from the Kalpa Sútra compare Mr. Thomas (Jainism, or the Early Faith of Aṣoka, p. 54).

[2] Jahrtelling der zuidelijke Buddhisten, p. 13.

[3] *i.e.* . . . . . 'that pure, enlightened, saved One died, past away, ceased from all sorrow. Since the Saint, the Blessed One, the Hero ceased from all sorrow, 900 years, and the 80th year in the 10th hundred, elapsed; and again, at the Recitation the 93rd year elapsed.' Unless Professor Jacobi can tell us what is referred to by the word I have rendered 'Recitation' (of which the Jain commentators give four inconsistent explanations), the chronology of this passage is provokingly vague. The Introduction to his Kalpa Sútra is to contain a full discussion of the historical questions connected with the origin of Jainism.

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THE COINAGE OF LYDIA AND PERSIA,

FROM THE EARLIEST TIMES TO THE FALL OF THE DYNASTY OF THE ACHÆMENIDÆ.

BY

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AUTHOR'S PREFACE.

In a work like the Numismata Orientalia, which is designed to embrace the whole field of Oriental Numismatics, the coinage of the great Persian Empire holds of necessity an avowedly leading position. The famous Persian Darics, "the archers," so frequently alluded to in the history of Greece and of which the influence was often so detrimental to the morality of the Hellenes, form the connecting link between the coinage of the Empire of Crœsus on the one hand and that of Alexander the Great on the other. We are thus led to commence with the consideration of the coinage of the kingdom of Lydia, a thorough comprehension of which is primarily desirable for those who would attain to a fuller knowledge of Persian numismatics than is to be gained by a mere contemplation of the types of the coins. The Persian daric is the legitimate successor of the gold stater of Crœsus, to whose administrative genius must be ascribed the earliest idea of a double currency based upon the relative values of gold and silver. We are therefore called upon to examine, first of all, the origin of the system of weights in use throughout the East in remote times, and to trace back to their source on the banks of the Euphrates and the Tigris the germs of the weights adopted in Lydia by the ancestors of Crœsus, according to which the precious metals were then estimated, and passed from hand to hand as recognised measures of the exchangeable value of all other commodities.

These primitive weight-systems were the basis of the future coinage, not only of Asia, but of European Greece; and Lydia is the border-land, the intermediate territory and link between the East and the West. For this reason I have prefixed to my description of the Lydian coinage an introductory survey of the weight-systems in use throughout the East before the invention of the art of coining. These preliminary remarks are, with some small modifications, extracted from an article which I published in the Numismatic Chronicle (N.S. vol. xv. p. 247 sqq.) "On the ancient electrum coins struck between the Lelantian Wars and the

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accession of Darius." The origin and the nomenclature of the Greek systems of weight is a subject which, until quite lately, has been so much misunderstood both by metrologists and numismatists, that a recapitulation in the present work of some of the chief results of the invaluable labours of Mommsen and of Brandis in this direction will form an appropriate introduction.

But to pass from Metrology to Numismatics. The earliest rude attempts at coining are undoubtedly the issues of the Sardian mint; but when at a somewhat later period, probably during the reign of Sadyattes, the artistic influence of the Greeks of the coast towns began to make itself felt in the Lydian capital, and when the coins of Lydia are first adorned with the figures of animals, it becomes difficult, if not impossible, to draw the line between the coinage of Lydia and that of the Asiatic Greek cities, and more especially Miletus. In still later times, during the reign of Crœsus, the coinage of Lydia again stands out clearly marked and easily distinguishable, with its national type, the fore-parts of a Lion and a Bull face to face. In the intermediate period between Gyges and Crœsus, above alluded to, I have excluded from my Plates all coins not manifestly Lydian in type, thus giving the preference to the Milesian mint over that of Sardes. In this attribution to Miletus of many coins sometimes included in the Lydian series, I am aware that I lay myself open to the charge of having omitted many highly interesting and important electrum coins; but where a line has to be drawn between Lydian and Greek, it seems to me to be better to err on the side of caution, and not to venture upon ascribing positively to Sardes coins which may just as well have been issued by her great commercial rival Miletus, or by other wealthy Greek cities of the coast. I have likewise excluded the coins of the Phocaic standard, struck, with a single exception, by cities in Æolis and the north-western coast lands, although these were perhaps included in the Lydian kingdom or tributary to it.

Descending to Persian times, a similar difficulty arises. A strict line of demarcation cannot be drawn between Persian and non-Persian. The Persian coinage proper consists only of the darics and the sigli, and even of these many, if not the greater number, may have been struck in Asia Minor, rather than in the capital of the Empire. The darics are, however, inseparable from the double darics, which latter are probably Asiatic-Greek coins with Persian types. I have consequently been guided here, as in the case of the Lydian currency, solely by type, accepting

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as Persian all coins which bear Persian types, and excluding all such as do not. Of course this is in many cases a purely arbitrary principle of selection, for it cannot be doubted that Persian types were not seldom placed upon some of the coins of Greek cities under the rule more or less direct of Persian satraps; while upon other coins of the same cities this tribute to the supremacy of the Great King was withheld. The former coins are still to all intents and purposes Greek, and not Persian; and in a comprehensive treatise on ancient numismatics they would be inseparable from the series of the coins of the cities to which they respectively belong: but in a work like the present, which deals solely with Oriental numismatics, it is absolutely necessary to bind ourselves down by some such rule as I have here adopted, unless, indeed, we are to restrict ourselves to the royal coinage pure and simple, the darics and the sigli.

The coinage of the Persian satraps has been treated in a similar manner; that is to say, all coins struck by Persian satraps have been excluded, save such, and such only, as bear Persian types; and by Persian types I here mean representations of the Great King.[1]

A treatise on Persian coins in which the money of the satraps is not included may perhaps be likened by some to a nut without the kernel. These coins have, however, been omitted, not from any failure on my part to appreciate at its full value their historical importance, but rather, on the contrary, because I am of opinion that they require a separate monograph.

The history of Lydia and Persia is to so great a degree interwoven with that of Greece, and is, moreover, so generally known, that I have not thought it necessary to give more than the barest outlines requisite for the elucidation of the matter in hand; and in the case of the coins which form the subject of the present article the merest sketch is sufficient, because, owing to the uniformity of type and the lack of inscriptions, it is for the most part impossible to classify them under the several reigns during which they were issued.

I have throughout abstained, as far as possible, from new conjectural attributions, both geographical and chronological, under the conviction that, however plausible such attempts at classifying the coins of the Persian Empire may seem to be, and however intrinsically probable it may be that such and such coins belong to

[1] There will be found in the Plates one or two exceptions to this rule, where coins without Persian types form part of a series from which I have not seen my way to exclude them.

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such and such reigns or localities, it is better, where there is room for any considerable divergence of opinion among numismatists, to leave the matter undecided. In some cases, however, where the evidence of the coins seemed to be of sufficient weight, I have ventured upon a general opinion as to the locality of certain classes of coins hitherto unattributed.

In conclusion, I have to state my acknowledgments to Mr. Hooft van Iddekinge, of the Hague; Herr Dr. J. Friedlaender, of Berlin; Prof. Dr. H. Brunn, of Munich; and M. Chabouillet, of Paris, for most kindly allowing me to have impressions of coins from the various collections in their charge: also to Mr. J. P. Six, of Amsterdam, not only for impressions of coins from his own cabinet, but for many valuable hints as to the classification of doubtful pieces, as well as for his kindness in bringing to my notice several specimens with which I was previously unacquainted.

BARCLAY V. HEAD.

London, *December*, 1876.

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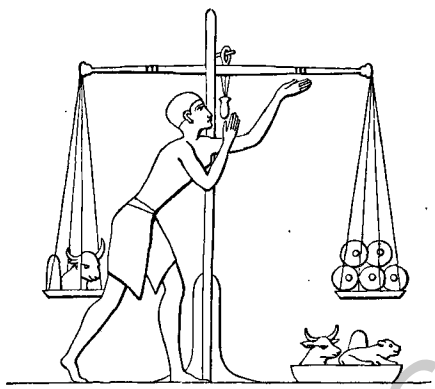

EGYPTIAN WEIGHING RINGS OF METAL WITH WEIGHTS IN THE FORM OF A SEATED LION, ETC.

THE COINAGE OF LYDIA AND PERSIA.

INTRODUCTION.

SURVEY OF THE WEIGHT-SYSTEMS IN USE FOR GOLD AND SILVER IN THE EARLIEST TIMES.

WHILE the ruder inhabitants of the West were still in search of a method of simplifying their commercial transactions, learning to substitute bronze or iron for the ox and the sheep, *the money* "Pecunia" of primitive times, and the readiest means of barter amid pastoral communities, the precious metals had long since commended themselves to the civilized peoples of the East as being the measure of value least liable to fluctuation, most compact in volume, and most directly convertible.

Untold centuries before the invention of the art of coining, gold and silver were used for the settlement of the transactions of every-day life,[1] either metal having conventionally its crudely defined value in relation to the other. Ingots, or small bars and rings of gold and silver passed from hand to hand estimated by weight, and had to be tested by the scales again and again on every new transfer, being as yet undefined and unsanctioned by any official guarantee of intrinsic value.[2]

[1] For a complete list of all the passages in the Old Testament where uncoined money is mentioned, see Madden in the Num. Chron., 1876, p. 81 sqq.

[2] Smith's Dictionary of Biblical Antiquities, art. 'Money,' by R. S. Poole.

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To show how from this rough method of exchange by weight, the precious metals first attained a formal currency, in the true sense of the word, it will be necessary to pass in review the principal weight-systems in use for gold and silver under the great empires of the East, in so far as we are able to follow the authoritative evidence of such Assyrian and Babylonian weights as have been fortuitously preserved to our own times.

Bronze Lion-weight from Nimrud.

It is already twenty years since Mr. Norris first published, in the Journal of the Royal Asiatic Society,[1] the Assyrian and Babylonian weights made in the form of Lions and Ducks, the discovery of which, among the ruins of ancient Nineveh, we owe to Mr. Layard. These interesting monuments of remote antiquity, it is almost needless here to repeat, are of the very highest importance to the student of Numismatics, indicating as they do, in the clearest possible manner, the original source of the systems of weight in use throughout Asia Minor and in Greece. The bronze lions and stone ducks are, however, not merely signposts pointing to the banks of the Euphrates and the Tigris; they present us with authentic official documents, inscribed, for the most part, with a double legend, one in Cuneiform characters, the other in Aramaic, generally giving the name of the King of Assyria or of Babylonia in whose reign they were made, together with the number of minæ or of fractions of a mina which each piece originally weighed.

As these weights have lately been all accurately weighed anew, in a balance of precision, I have only to refer the reader to the Ninth Annual Report (1874–5) of the Warden of the Standards, under whose superintendence a complete list of the whole series has been drawn up. It is, therefore, here only necessary to state that the results of this careful reweighing are in the main identical with those arrived at by the late Dr. Brandis, whence it would appear that the mina in use in the ancient Assyrian and Babylonian Empires, during the extended period from B.C. 2000–625, existed in a double form, the heavy mina, falling gradually from a maximum of 1040 grammes [16,068 Eng. grs.] to a minimum of 960

[1] Vol. xvi. p. 215 seq. See also Layard's *Nineveh and Babylon*, p. 601.

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[14,832 Eng. grs.], the lighter from about 520 grammes to 460 [8,034—7,107 Eng. grs.]. Dr. Brandis[1] had fixed the weights of these two minæ at 1010 and 505 grammes [15,600 and 7,800 Eng. grs.] respectively, and the evidence of the earliest coins, which must not be neglected in this matter, tends to show that about the time when the Greeks of Asia Minor first became familiar with them, their weights were approximately what Dr. Brandis supposed.

There seem to be but slight grounds, however, in favour of the theory, first broached by Mr. Norris, that the lighter of the two minæ was peculiar to the Babylonian and the heavier to the Assyrian Empire, but it is probable that the use of the heavy mina was more extended than that of the lighter; hence perhaps the addition of an Aramaic inscription on most of the weights belonging to the former, which was probably not only the standard-weight in Assyria, but accepted throughout the whole of Syria, Palestine and Phœnicia.

Assyrian Duck-weight (Nimrud).

The lighter mina would nevertheless seem to have been the form more generally adopted in Babylon, although there is nothing to prove that it may not have been also used in Nineveh.

The system according to which the Assyrian and Babylonian talents were subdivided was the sexagesimal, the talent being composed of sixty minæ and the mina of sixty shekels, the shekel being again divided into thirty parts. This sexagesimal system, which pervaded the whole of the Assyrian weights and measures,[2] both of space, of material and of time, in which latter it has maintained itself down to our own age, is for practical employment in weighing and measuring decidedly preferable both to the decimal and the duodecimal, because the number 60 upon which it is founded possesses a far greater power of divisibility than either 10 or 12. The weights of the two talents and their divisions are as follows:—

Heavy Talent	60·600 kilogr.	= 936,000	grs.
,, Mina	1010 grammes	= 15,600	,,
,, $\frac{1}{60}$ Mina	16·83 ,,	= 260	,,
Light Talent	30·300 kilogr.	= 468,000	,,
,, Mina	505 grammes	= 7,800	,,
,, $\frac{1}{60}$ Mina	8·415 ,,	= 130	,,

[1] Brandis, Münz- Mass- und Gewichtswesen in Vorderasien bis auf Alexander den Grossen, p. 45 (Berlin, 1866).
[2] Brandis, p. 7.

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Of these two talents the heavy, or so-called Assyrian talent, seems to have passed by land through Mesopotamia and Syria to the Phœnician coast towns and to Palestine, where we find it in use among the Israelites in a somewhat modified form; the Hebrew gold shekel weighing only 253 grs. instead of 260.[1] By the Phœnician traders the heavy talent and its divisions was made known to the Greeks on either side of the Ægean Sea.

The light, or so-called Babylonian talent, on the other hand, found its way from the banks of the Euphrates by land into the kingdom of Lydia, whose capital Sardes was intimately connected on the land side with Babylon, with which it was in constant commercial intercourse.

From these two points, Phœnicia on the one hand and Lydia on the other, the Greeks of Asia Minor received the two units of weight on which the whole fabric of their coinage rests.

How long before the invention of coining these Assyrian and Babylonian weights had found their way westwards, it is impossible to say. It is probable, however, that the Greeks of Asia had long been familiar with them, and that the small ingots of gold and silver, which served the purposes of a currency, were regulated according to the weight of the sixtieth part of the Babylonian mina. It is true that, not bearing the guarantee of the State, it was necessary to put them into the scales and weigh them, like all other materials bought and sold by weight, whenever they passed from the hands of one merchant to those of another; thus although the invention of coining brought with it no essential change in the conditions of commercial intercourse, the precious metals having for ages previously been looked upon as measures of value, it nevertheless very greatly facilitated such intercourse, rendering needless the cumbrous and lengthy process of weighing out the gold or silver to be received in exchange for any given commodity.

In adopting the sixtieth part of the ancient Babylonian mina as their stater or shekel, neither Greeks nor Phœnicians adopted the sexagesimal system in its entirety, but constituted new minæ for themselves, consisting of fifty staters instead of sixty. Thus the Greek stater was identical with the Assyrian and Babylonian sixtieth; but the Greek mina was not identical with the Assyrian mina, since it contained but fifty of these units. On the other hand, the Greek talent contained, like the Assyrian, sixty minæ, though only 3,000 instead of 3,600 staters.

The accepted value of gold as compared with silver was in these times, and for long afterwards, as $13\frac{1}{3}$ is to 1;[2] and from this relation of gold to silver the standard by which the latter metal was weighed seems to have been developed in the following manner. The proportion of 13·3 to 1 made it inconvenient to weigh the two metals according to one and

[1] Josephus, Arch. xiv. 7, 1, alluding to a weight of gold, says, ἡ δὲ μνᾶ παρ' ἡμῖν ἰσχύει λίτρας δύο καὶ ἥμισυ. The λίτρα here intended is of course the Roman pound = 327·45 gr., therefore $2\frac{1}{2}$ Roman pounds = 818·62 gr.; and as the Hebrew gold shekel was the fiftieth part of the mina, it must have weighed about 16·37 gr., or about 253 English grains.

[2] Herodotus (iii. 89) says 13 to 1, but this is not quite exact, as has been shown by Mommsen, "Note sur le système métrique des Assyriens," which is appended to his Hist. Mon. Rom. ed. Blacas, vol. i. p. 407. See also Brandis, p. 62 seq.

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the same standard, as in that case a given weight in gold would not have been exchangeable for a round number of bars of silver, but for thirteen and one third of such bars; hence, in order to facilitate the exchange of the two metals, the weight of the silver stater was raised above or lowered beneath that of the gold stater, in order that the gold sixtieth might be easily convertible into a round number of silver staters.

Now the sixtieth part of the heavy gold Assyrian mina was a piece weighing about 260 grs. Dividing this piece again by sixty, we obtain a minute gold piece weighing only 4·3 grs.; if we multiply this by 13·3, the proportionate value of silver to gold, we arrive at a unit in silver of about 57 grains. Thus arose the silver drachm introduced by the Phœnicians into Greece, upon which the so-called Græco-Asiatic or Phœnician silver-standard is based. According to the sexagesimal system, its value was that of the sixtieth part of the sixtieth of the gold mina. Four of these silver sixtieths formed a piece of metal weighing about 230 grs. (maximum). This became the stater of the Phœnician silver-standard, and as fifteen of these silver staters go to form one gold sixtieth, this standard has been designated by Brandis as the Fifteen-stater standard.

The people of Lydia, adopting a different method, arrived at a silver stater of a different weight. We have seen that at Sardes the light or Babylonian gold mina, travelling by land, had become domesticated. The sixtieth of this mina, weighing 130 grs., multiplied by 13·3, yields about 1729 grs. of silver. Applying to this silver-weight a decimal division, they arrived at a convenient silver stater of about 170 grs., and as ten of these pieces are equivalent to one gold sixtieth, this standard has been called by Brandis the Ten-stater standard.

Both the Fifteen- and the Ten-stater standards are thus in reality based upon one and the same unit, viz. a piece of about 57 grs. This is the third part of the stater of 170 grains, and the fourth part of the stater of 230 grs. We therefore see why the former of these staters is regularly divided into three, and the latter into two and four parts.[1]

As the Phœnicians had penetrated everywhere, establishing, with their accustomed enterprise, their factories on almost every coast, they soon discovered the metallic wealth of the land, and began to work for the first time the veins of silver which had lain for ages unsuspected in the mountains. Hence, little by little, the Phœnician silver weight became widely known throughout the Greek world. The Babylonic silver standard, on the other hand, outside the kingdom of Lydia, was hardly known at all until after the Persian conquest, when it was adopted for the silver currency of the Empire and its dependent satraps.

The Greeks, however, when they first struck coins of silver, did not everywhere adopt the prevalent Phœnician standard. Chalcis and Eretria, perhaps the most important commercial cities of European Greece, had established, as early as the eighth century B.C., an active maritime trade with the opposite coasts of Asia Minor, and from these coasts they received the Babylonian gold mina with its sixtieth, viz. 130 grains. As there was little or no gold

[1] Brandis, p. 58.

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on their own side of the sea, while silver, on the other hand, flowed into Euboea from her colonies in the mining districts of Macedon and Thrace, the cities of that island transferred to silver the standard with which they had become familiar in their commerce with the Ionian towns, and on this Babylonic gold standard they struck their earliest silver staters, weighing 130 grains. Their example was soon followed by Corinth and Athens, and the Babylonian origin of this weight was lost sight of by the Greeks, and the name of the Euboic talent was applied by them to the old Babylonian gold weight; all coins, whether gold or silver, struck not only in Greece, but in the East, on this weight, being said to follow the Euboic standard. The name of the Babylonic standard, nevertheless, remained in use for the Lydian and Persian silver weight,[1] which had been developed by the Lydians out of the light gold mina. By the Babylonic talent the Greeks therefore understood a silver standard, the stater of which weighed 170 grs.; while by the Euboic talent they understood a standard used either for silver or gold, the stater of which weighed 130 grains.

About the end of the eighth century B.C., or in other words about the time when the Greeks of Asia Minor or the Lydians first hit upon the idea of stamping the bars of metal with official marks as guarantees of their weight and value, the following were therefore the weights generally current in commercial intercourse:—

(*a.*)

(i.) **The 60th of the heavy Assyrian mina in gold, weighing 260 grains.**

This weight had found its way through Syria and Phœnicia to the coasts of Asia Minor. The earliest coins of this class are said to have been issued at Phocæa. Hence the earliest gold staters of 256 grains (maximum), with their subdivisions, have been designated as of the Phocaic standard.

(ii.) **The corresponding silver piece of 230 grains, fifteen of which were equal in value to one Phocaic gold stater.**

This weight, which was also of Phœnician transmission, was adopted by many of the coast towns of Asia Minor for their silver currency. The actual weight of the coins of this standard seldom came up to the normal weight of 230 grains, 220 grains being about the average. As the earliest coins of this weight were issued by Greek cities of Asia Minor, it has obtained the name of the Græco-Asiatic standard. Brandis calls it the Fifteen-stater standard.

[1] This is clear from the statement of Herodotus (iii. 89) concerning the revenues of the Great King, where he gives the sums paid in silver by the nineteen satrapies in Babylonian talents, while the twentieth (the Indian), he says, paid in Euboic talents of gold. Concerning this whole passage, vide Mommsen, Hist. Mon. Rom. ed. Blacas, vol. i. p. 27 sq.; Brandis, p. 63; Hultsch, p. 276.

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(iii.) **The weight adopted by Pheidon, when, some time before the middle of the seventh century, he first instituted a mint in the island of Ægina.**

This appears to be only a degradation of the Phœnician silver standard,[1] the maximum weight of the earliest Æginetic staters being as high as 212 grs., though the average weight is not more than 190 grs. The Æginetic standard in the earliest times was prevalent throughout the Peloponnesus, in the Chalcidian colonies in Italy and Sicily, in Crete, on the Cyclades, especially Ceos, Naxos, and Siphnos, and even in certain towns in Asia Minor, among which Teos and perhaps Cyme may be mentioned, as well as in many other localities which need not here be particularized.

(*β.*)

(iv.) **The 60th of the light Babylonian gold mina, weighing 130 grains.**

This weight found its way by land from the banks of the Euphrates to Sardes, and from Sardes probably through Samos to the important commercial cities of Euboea, Chalcis and Eretria, where silver coins of 130 grs. were first issued. Whether used for silver as in Greece, or for gold as in the East, this weight went by the name of the Euboic standard.

(v.) **The corresponding silver piece of 170 grains, ten of which were equal in value to one Euboic gold stater of 130 grains.**

This weight, being first met with in the silver coinage of the Lydians, who had doubtless derived it from Babylon, retained its original name, and was known as the Babylonic silver standard. It has been designated by Brandis as the Ten-stater standard.

[1] Brandis ingeniously developes the Æginetic silver standard out of the electrum stater of 220 grs. in the following manner. In the first place he supposes the electrum stater to contain about one-third of silver; he then takes what remains of pure gold, viz. about 146 grs., the silver equivalent of which, according to the recognized proportionate value of the two metals, is 1941 grains of silver or just 10 Æginetic silver staters of 194 grs.

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Electrum.

Besides gold and silver, a third precious metal was recognized by the ancients, which as early as the time of Sophocles was known by the name of electrum. It was also called white gold, and appears to have been always looked upon as a distinct metal.[1]

Electrum was obtained in large quantities from the washings of the Pactolus, and from the mines on Tmolus and Sipylus. It was composed of about three parts of gold and one part of silver. It therefore stood in an entirely different relation to silver from that of pure gold, the latter being to silver as 13·3 is to 1, while electrum was about 10 to 1.[2]

This natural compound of gold and silver possessed several advantages for purposes of coining over gold, which, as might have been expected, were not overlooked by a people endowed in so high a degree with commercial instincts as were the inhabitants of the coast towns of Asia Minor. In the first place, it was more durable, being harder and less subject to wear; secondly, it was more easily obtainable, being found in large quantities in the immediate neighbourhood; and, lastly, standing as it did in the simple relation of 10 to 1 as regards silver, it rendered needless the use of a different standard of weight for the two metals, enabling the authorities of the mints to make use of one set of weights and a decimal system easy of comprehension and simple in practice.

On this account electrum was weighed according to the silver standard, and the talent, the mina, and the stater of electrum were consequently equivalent to ten talents, ten minæ, or ten staters of silver of the same weight.

The weight of the electrum stater in each town or district thus depended upon the standard which happened to be in use there for silver bullion or silver bar-money, the practice of the new invention of stamping metal for circulation being in the first instance only applied to the more precious of the two metals, the electrum stater representing, in a conveniently small compass, a weight of uncoined silver, or silver in the shape of bars or ingots, ten times as bulky and ten times as difficult of transport. Once, however, in general use, the extension to silver and to gold of the new invention of coining could not be long delayed.

As the standards according to which bullion silver was weighed were various in various localities, having been developed, as we have seen above, by different methods out of the sixtieth

[1] It does not appear, however, that money coined in this metal was called by a different name from that used to designate pure gold. Thus in the Attic inscriptions (Corp. Inscr. Att. ed. Kirchhoff, vol. i. no. 301) we find *χρυσοῦ στατῆρες Κυζικηνοί* or *χρυσίου Κυζικηνοῦ στατῆρες*, in these cases electrum, and *Δαρεικοῦ χρυσίου στατῆρες*, in this case gold. The real distinction lay, not in the name of the metal, but in the specifications *Κυζικηνός* or *Δαρεικός*, just as in English we speak of German silver.

[2] This applies only to the period when gold was as 13·3 is to 1. In later times, when gold had fallen to 10 : 1, electrum would only be about $7\frac{1}{2}$: 1, as is evident from Demosthenes's valuation of the Cyzicene stater at 28 Attic drachms.

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parts of the heavy and light Babylonian gold minæ, so also were the earliest electrum staters of different weights, depending everywhere upon silver, and not upon gold. Consequently, as might have been expected, we meet with electrum coins of the Phœnician, the Æginetic, the Babylonic and the Euboic systems.[1] The coins of the so-called Phocaic system stand on a somewhat different footing. This standard, as we have seen above, was not a silver standard, but a gold one, based upon the 60th of the heavy Babylonian gold mina weighing about 260 grains; hence the electrum coins which follow this standard are clearly distinguishable, not only by their weight, but by their colour, from the electrum of the four silver standards. Whether they ought to be included under the heading of Electrum is almost a question; for the majority of these coins approach more nearly to gold in colour, and they were probably intended to circulate as gold,—the metal of which they are composed not being the natural electrum, as found in Lydia, but an artificial compound, the use of which, as representing gold, may have been a source of some profit to the State.

[1] Num. Chron. 1875, pp. 254 sqq.

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PART I.

LYDIA.

The preceding review of the principal systems of weight used in the East and in Asia Minor for the precious metals, circulating simply as such and not as coins, leads us to the more immediate subject of this article, the COINAGE OF LYDIA AND PERSIA.

Lydia, as Prof. E. Curtius remarks in his History of Greece, was in ancient times "the western outpost of the Assyrian World-empire"; and when this empire fell into decay, Lydia, following the example of Media and Babylonia, threw off the yoke she had worn for five centuries, and under a new dynasty, the Mermnadæ, entered upon a new and independent course of national life. The policy of the new rulers of the country, who were originally Carian mercenaries, was to extend the power of Lydia towards the West, to obtain possession of towns on the coast, and thus to found a naval power, in which the boldness and enterprise of the Greek might be, as it were, engrafted upon the spirit of commercial activity which the natives of Lydia possessed in common with all people of Semitic race.

PERIOD I. REIGNS OF GYGES AND ARDYS.

With this object, Gyges, the Founder of the dynasty of the Mermnadæ, who ascended the throne shortly before B.C. 700, established a firm footing on the Hellespont, where, under his auspices, the city of Abydos was founded.[1] His next step was to secure, if possible, the dominion of the entire Ionian coast. In this project he met with considerable success, but did not live to see the realization of his dreams.

His successor Ardys, B.C. 660–637,[2] prosecuted the war with the Ionians with uninterrupted ardour, and would doubtless have succeeded in uniting the whole coast-line under the dominion of Sardes, had not the invasion of the Cimmerian hordes called off his forces to protect his own dominions from the incursions of the Barbarians.

[1] Strabo, xiii. p. 590 : *Ἄβυδος δὲ Μιλησίων ἐστὶ κτίσμα, ἐπιτρέψαντος Γύγου τοῦ Λυδῶν βασιλέως· ἦν γὰρ ὑπ' ἐκείνῳ τὰ χωρία καὶ ἡ Τρωὰς ἅπᾶσα.*

[2] Maspero. Hist. anc. des peuples de l'orient, Paris, 1875, p. 483.

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To the reign of Gyges, the Founder of the new Lydian Empire, as distinguished from the Lydia of more remote antiquity, which, as we have seen above, was closely united with the Empire of Assyria, must be ascribed the earliest essays of the art of coining. The wealth of Gyges in the precious metals may be inferred from the munificence of his gifts to the Delphic shrine, consisting of golden mixing cups and silver vessels, and amounting to a mass of gold and silver such as the Greeks had never before seen collected together.[1] It is in conformity with the whole spirit of a monarch such as Gyges, whose life's work it was to extend his empire towards the West, and at the same time to keep in his hands the lines of communication with the East, that from his capital Sardes, situate on the slopes of Tmolus and on the banks of the Pactolus, both rich in gold, he should send forth along the caravan routes of the East, into the heart of Mesopotamia, and along the river-valleys of the West down to the sea, his native Lydian ore gathered from the washings of the Pactolus and from the diggings on the hill-sides. This precious metal he issued in the form of ingots stamped with a mark to guarantee their weight and value. For his commerce with Babylon by land a crude lump of electrum was issued weighing 168·4 grains and consequently worth, at the proportion of 10 : 1 to silver, exactly one-fifth of the Babylonian silver mina of 8420 grains.[2] On the other hand, for dealings with the Ionian coast towns, where the Babylonian silver mina was unknown, it was necessary to put into circulation an electrum stater of the weight of 224 grains, five of which would exchange for one Græco-Asiatic silver mina of 11200 grains.[3] Thus then the first issues of the Sardian mint went forth in two opposite directions, embracing both East and West in the circle of their far-reaching currency. The commercial instincts of the Lydians guiding the policy of the State even in times of war, for the border-feuds with the Ionian territory by no means interfered with the intercourse between Greeks and Lydians, as is evident from the care taken by the Lydian kings to conduct the war with extreme moderation, all Temples of the gods and even human habitations being spared in the struggle for hegemony between Lydia and Ionia.

To the reigns of Gyges and Ardys, B.C. 700–637, may probably be attributed all such staters of electrum as bear no type,—the obverse being plain and the reverse marked with three deep incuse depressions, the one in the centre oblong, and the others square,—together with certain similar smaller coins which appear to represent the $\frac{1}{2}$, the $\frac{1}{6}$, the $\frac{1}{12}$ and the $\frac{1}{24}$ parts of the larger of the two staters.

The following is a description of the earliest issues of the Sardian mint, none of which would appear to be later than the reign of Ardys.

[1] Curtius, Gr. Gesch. Bd. i. p. 466, Berlin, 1857. Herod. i. 14: *ὁ δὲ χρυσὸς οὗτος καὶ ὁ ἄργυρος, τὸν ὁ Γύγης ἀνέθηκε, ὑπὸ Δελφῶν καλέεται Γυγάδας ἐπὶ τοῦ ἀναθέντος ἐπωνυμίην.*

[2] There was another form of the Babylonian silver mina, weighing 8645 grs., but this does not appear to have come into use until Persian times, the Persian siglos weighing 86·45 grs. and the stater 172·9. It is therefore convenient to distinguish this heavier form by the name of the Perso-Babylonic silver mina.

[3] The full weight of the stater and mina of this standard were 230 and 11500 grs.

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ELECTRUM.

(i) Babylonic Standard.

Stater.

Weight.	Obverse.	Reverse.
166·8	Plain (*Typus fasciatus*).	Three incuse depressions, that in the centre oblong, the others square, within the central oblong a Fox ?? running left.

[Brit. Mus. Plate I. 1.]

(ii) Græco-Asiatic Standard.

Stater.

219	Plain (*Typus fasciatus*).	Similar: the devices contained in all three incuses visible: in the centre a Fox, in the upper square an animal's head (? Stag's), in the lower an ornament ✕.

[Lenormant, Monnaies Royales de la Lydie, p. 1.]

Half-Stater.

105·8	Plain (*Typus fasciatus*).	Three incuse depressions: that in the centre oblong, the others square. Double struck.

[Brit. Mus Plate I. 2.]

Sixth.

37	Plain (*Typus fasciatus*).	Two incuse squares of different sizes.

[Brit. Mus. Plate I. 3.]

Twelfth.

18	Plain (*Typus fasciatus*).	Incuse square.

[Mus. Luynes. Plate I. 4.]

Twenty-Fourth.

9	Plain (*Typus fasciatus*).	Incuse square.

[Brit. Mus. Plate I. 5.]

In the Fox, which is more or less visible in the central incuse on the staters both of the Babylonic and Græco-Asiatic standards, M. F. Lenormant recognizes a symbol of the Lydian Dionysus, whose name Bassareus may be connected with the word Bassara or Bassaris, a Fox.[1] From the Temple treasury of this god the earliest coins of Sardes may therefore have been issued.

The example, having been once set by Sardes, of stamping pieces of electrum with punch-marks containing small devices as a guarantee of their weight, was soon followed by her haughty rival Miletus, the wealthiest commercial city on the whole Asiatic coast, and the artistic Greek

[1] Stephanus, Thesaurus, s.v.

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was quick to adopt and to beautify the Lydian invention. The first issues of the Milesian Mint, while retaining the form of incuse peculiar to the Lydian money, bore upon the obverse the figure of a Lion generally in a recumbent attitude with head turned back. Ephesus, Cyme, and another city which has not been identified with certainty, soon followed suit, striking electrum staters with their respective types, the stag, the fore-part of a horse, and a bull; the Ephesian stater bearing in addition to its type an inscription in archaic characters which has been read by Mr. Newton (Num. Chron. N.S. vol. x. p. 237), AMBZIMƎRONƎAΦ, "I am the token or coin of the Bright One" (*i.e.* Artemis). This stater, now in the collection of the Bank of England, is the earliest inscribed coin known.

All these cities, in applying the Lydian invention, restricted their first issues to electrum, which they coined according to the Græco-Asiatic or Phœnician silver standard, the average weight of the stater of which is about 220 grains.

Samos alone adopted a different standard,[1] and struck her electrum coins according to the light Babylonian gold mina, the stater of which weighed about 130 grains; and as we know that this standard was in use for silver in the island of Eubœa, there is every reason to suppose that we possess in this circumstance the key to the otherwise anomalous fact of electrum and gold being weighed according to one and the same standard. To account therefore for the weight of the Samian electrum stater, we must suppose that the Euboic silver mina was in use in that island as well as in Eubœa; but whether Chalcis originally derived it from Samos, or Samos from Chalcis, it is impossible to say with certainty.

PERIOD II. REIGNS OF SADYATTES AND ALYATTES.

The second period of the coinage of Lydia extends from the accession of Sadyattes in B.C. 637, to that of Crœsus in 568.[2] Sadyattes, the son of Ardys, after the Cimmerian hordes had been at length finally expelled from Asia Minor, found himself at liberty again to turn his attention to the West. He laid siege to Miletus, and year after year wasted her fertile lands; but, owing to the obstinate resistance of the citizens, was never permitted to enter their walls as a conqueror. He was succeeded by his son Alyattes, who continued for some years longer the blockade of the great Ionian city, but with no more fortunate result. Under their Tyrant Thrasybulus, the Milesians, though indeed hard pressed for food, contrived to deceive the Lydian monarch as to the extent of their remaining resources, and finally he was induced to abandon all hopes of subduing them by force of arms, and to conclude with them a treaty of alliance after a war which had lasted for the space of eleven years.

During this time of hardship and impoverishment it is probable that Miletus ceased to issue

[1] Metrol. Not. on Anc. El. pp. 26–37; Num. Chron. 1875, p. 270 sq.

[2] The dates here assigned to the Lydian kings can only be looked upon as approximate. Chronologists are still at variance respecting them.

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staters, and that her coinage was restricted to the smaller denominations such as Thirds and Sixths, which would suffice for her domestic necessities; the mintage of the Græco-Asiatic stater being transferred to her ally Chios and to other coast towns. Among these electrum staters of the second period, which are all probably subsequent to the siege of Miletus, specimens have come down to us of Chios, Clazomenæ and Chalcis in Ionia, and of Lampsacus and Abydos in the North. The reverses of these staters are no longer of the primitive Lydian type, but exhibit the ordinary incuse square sometimes divided into four quarters. The character of the work upon the obverses of these later coins is also more advanced than that of the extremely archaic staters of Miletus, Ephesus and Cyme mentioned above (p. 13).

In the mean time the coinage of the Lydian Empire itself seems to have undergone some modification. The influence of the arts of Ionia began to be felt in Sardes, and instead of the uniform plain surface of metal, relieved only by irregular streaks, which characterizes the coins of the reigns of Gyges and Ardys, those of a somewhat later period, which I would give conjecturally to the time of Sadyattes and Alyattes, are adorned with types after the Greek fashion, and, if we may judge by their style, are the works of Greek engravers in the employment of the Lydian monarch. It is indeed impossible to distinguish them with absolute certainty from the coins of the Greek coast towns, and there will always be some difference of opinion among Numismatists as to which are Greek and which are Lydian. It is only by comparing them with the coinage of Crœsus, which as I shall show later on is well defined and uniform in type, that we are able to set aside from the numerous types of the Græco-Asiatic electrum stater of this period one or two specimens as Lydian. The money of Crœsus, both of gold and silver, is distinguished by one invariable device, which is the same on all the denominations, from the gold stater to the smallest silver coin—the fore-parts of a Lion and Bull; and this same device, or at any rate something of a similar nature, would seem to have been the special mark of the Lydian currency from the time of Sadyattes or thereabouts. This imperial device—the Arms, so to speak, of the city of Sardes—was doubtless, like the types of all the earliest coins of Greek cities, of religious origin, and is therefore to be distinguished from that of the Royal Persian money of Darius and his successors, which was adorned with the effigy of the Great King himself.

The only stater of the Græco-Asiatic standard which in my judgment is undoubtedly Lydian, and of the time of Sadyattes or Alyattes, is one which may be thus described.

ELECTRUM.

GRÆCO-ASIATIC STANDARD.

Stater.

WEIGHT.	OBVERSE.	REVERSE.
215·4	Fore-parts of Lion and Bull turned away from each other and joined by their necks.	Three incuse depressions, that in the centre oblong, the others square.

[Munich. Plate I. 6.]

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The following I should prefer to attribute to Miletus during the time of her prosperity before the wars with Lydia, rather than to Sardes, notwithstanding the occurrence of the Fox upon the reverse of the Half-stater. The Lion on the obverse is the principal type, and by this we must be guided in our attribution. The Stag's head and the Fox on the reverse of the Half-stater may simply indicate that the coin, although issued from the Milesian Mint, was current both in Ephesus and Sardes.

ELECTRUM.

Græco-Asiatic Standard.

Staters.

Weight.	Obverse.	Reverse.
215·3	Fore-part of Lion, right, star above forehead.	Three incuse depressions, that in the centre oblong, the others square.
	[Brit. Mus. Num. Chron. N.S. vol. xv. pl. vii. 3.]	
217·8	Lion recumbent right, looking left.	Similar, but incuses containing ornaments.
	[Brit. Mus. Brandis, p. 402, incorrectly described as a Chimæra.]	
218	Lion recumbent left, looking right, within an oblong frame.	Three incuse depressions, that in the centre oblong, the others square but irregularly formed.
	[Cabinet de France. Brandis, p. 394.]	

Half-stater.

107	Lion recumbent right, looking left, within an oblong frame.	Similar, but each sinking containing a type; the upper square a Stag's head, the central oblong a Fox walking l., the lower square an ornament ✕.
	[Brit. Mus. Num. Chron. N.S. vol. xv. pl. viii. 4.]	

Third.

72	Lion recumbent left, looking right.	Two incuse squares, containing respectively ✕ and ℕ.
	[Cabinet de France. Brandis, p. 394.]	

The Thirds, Sixths, etc., having on the obverse the head of a Lion surmounted by a star, are undoubtedly Milesian, and represent, in my opinion, the later period of the activity of the Milesian Mint; for the Milesian electrum would seem to have undergone some alteration in its value, if, as is generally the case, the numerous countermarks which occur on nearly all the coins to which I am now alluding are any indication of a reissue. This alteration in the value of the Milesian electrum, and if of the Milesian probably also of the Lydian electrum, may be in part the effect of the rise in importance of Phocæa, and of the first issue of a comparatively pure gold coinage on the so-called Phocaic standard, a coinage which would naturally serve still further to depreciate the value of the less-pure Lydian metal, already perhaps circulating somewhat above its intrinsic value. It is not, therefore, sur-

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prising if we notice about this time (circ. B.C. 600) a general cessation of the pale electrum coinage of Lydia and the Greek coast towns, and on the other hand a corresponding extension of the coinage of dark-coloured electrum, probably circulating as gold, according to the Phocaic system.

Now between the cessation of the pale electrum coinage shortly after the Milesian war and the accession of Crœsus in B.C. 568, there is a period of about half a century during which the city of Phocæa seems to have obtained a considerable increase of power and influence, more especially upon the sea. It may therefore be considered as certain that the rise and extension of the Phocaic standard coincides with this period, during which the Phocæans, owing in part perhaps to the troubles of Miletus, are said to have been supreme upon the sea (*θαλαττοκρατεῖν*). This period, according to Eusebius (Chron. ii. ed. Mai, p. 331), lasted forty-four years, commencing from B.C. 575. It has, however, been proved that this date is erroneous, and that the commencement of the Phocæan Thalassocracy should be placed in the year B.C. 602.[1] From this time until that of Crœsus, the influence of Phocæa, both by sea and land, appears to have been sufficiently strong to carry through a reform in the gold currency of the greater part of the Asiatic coast lands; and it is therefore worthy of remark that the staters of the Phocaic standard, as originally issued by the cities of Phocæa, Teos, Cyzicus, and others, are not of the pale-coloured electrum of the old Milesian and Lydian standard, but are of comparatively pure gold, and that they follow the standard afterwards adopted by Crœsus for his royal gold coinage, the Phocaic stater weighing 256 grains, which is, allowing for a slight per-centage of alloy, just double the value of the staters of Crœsus. This is a coincidence which leads me to infer that the cities which took part with Phocæa in the issue of this new coinage intended their money to circulate as gold, and not as electrum, and that, therefore, although they retained the globular form of coin with which the Asiatic Greeks had been long familiar, they at the same time selected the old Babylonic gold standard with its sixtieth of 260 grains for their new gold stater.

It has been generally supposed that the Phocaic coinage was contemporary with the Milesian, and that Miletus, contemporaneously with her electrum of 220 grains, struck gold on the Phocaic standard of 250 grains (Brandis, p. 395); and the stater attributed to that city, with the type of the Lion's head described below, has even been considered by Burgon to be the oldest of all Greek coins. In my judgment both the Milesian origin and the supposed high antiquity of this piece are exceedingly doubtful. The style in which the Lion's head is executed differs essentially from that of the early coins of Miletus, and may be called barbaric rather than archaic. It bears a much closer resemblance, on the other hand, to the Lions' heads upon the staters of Crœsus, but is even more roughly executed. Now, as I have shown above, it was from the first the policy of the Mermnadæ in Lydia to render the coinage of Sardes conformable, on the one hand, to that of the wealthiest and most important of the Greek coast towns with which Sardes carried on an active

[1] Goodwin, "De potentiæ veterum gentium maritimæ epochis apud Eusebium," Göttingen, 1855.

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commercial intercourse, and, on the other, with the vast empires of the interior. I would therefore suggest that the gold stater with the Lion's head may be also Lydian, and that it may represent an endeavour on the part of Alyattes to assimilate his currency, not only in value, but also in fabric, to that of the Ionic coast towns; and as during the latter part of his reign the influence of Phocæa seems to have been predominant, and the Phocaic gold stater to have been little by little ousting the pale electrum, so Alyattes, in order to facilitate intercourse with the Greek cities which had adopted this standard, may have struck the gold staters, which may be thus described, of the fabric and weight of those of Phocæa.

GOLD.

PHOCAIC STANDARD.

Stater.

WEIGHT.	OBVERSE.	REVERSE.
248	Head of Lion left with open jaws and protruding tongue.	Incuse square roughly executed.

[Brit. Mus. Plate I. 7.]

Sixth.

42·5	Lion's head left on round shield.	Incuse square.

[Brit. Mus. Plate I. 8.]

The attribution of these coins to Sardes rather than Miletus is of more importance than might be at first imagined, since it enables us to define within more reasonable limits the territory over which the influence of Phocæa extended, while at the same time we are no longer compelled to suppose that Miletus suddenly changed the standard of her coinage or issued contemporaneously coins of two different systems; for it is probable that during the period to which I propose to attribute the issue of Phocaic gold, viz. about B.C. 600–560, Miletus was still striking Thirds and Sixths on the Asiatic standard, although doubtless the activity of her mint had been much affected by her wars with Lydia.

The territory over which the influence of the Phocaic gold coinage extended would seem therefore, judging from the coins which have come down to us, to have included the district from Teos northwards to the shores of the Propontis, together with, in all probability, the islands of Lesbos and Thasos on the opposite coast of Thrace.

The following is a list of the Phocaic gold staters which are to be found in various collections. Among them is the stater with the Lion's head, described more fully above.[1]

GOLD.

PHOCAIC STANDARD.

Staters.

WEIGHT.	CITY.	OBVERSE.	REVERSE.
254	Phocæa.	Seal right, beneath ⊙.	Two incuse squares of different sizes.

[Munich. Num. Chron. N.S. vol. XV. pl. X. 6.]

[1] It is unnecessary here to enumerate the smaller coins of the same system, of which a complete list will be found in my paper in the Numismatic Chronicle, N.S. vol. XV. p. 292.

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Weight.	City.	Obverse.	Reverse.
256	Teos.	TƧOM Griffin's head.	Small incuse square.
		[Munich. Brandis, p. 397.]	
248	Sardes.	Head of Lion l. with open jaws and protruding tongue.	Incuse square roughly executed.
		[Brit. Mus. Plate I. 7.]	
252	Cyzicus.	Tunny fish between two fillets.	Two incuse squares, the larger one containing zigzag ornaments, the smaller a Scorpion or Crayfish (ἀστακός?).
		[Brit. Mus. Num. Chron. N.S. vol. xv. pl. x. 7.]	
252·7	Zeleia.	Chimæra walking left.	Two incuse squares of different sizes.
		[Brit. Mus. Num. Chron. N.S. vol. xv. pl. x. 9.]	
252	Thrace or Thasos.	Centaur carrying off a nymph.	Deep incuse square quartered.
		[Bank of England. Num. Chron. N.S. vol. xv. pl. x. 11.]	

That Alyattes should have added to the Lydian electrum coinage a gold piece of the Phocaic standard, in order to bring his currency into harmony with that of the north-western coast district, is just what might have been expected of a prince whose ability and good fortune were such that, after proving himself able to maintain intact the eastern boundary of his kingdom, the river Halys, in the face of an invasion led by the allied kings of Media and Babylonia, he again turned his attention with renewed vigour to the sea-coast, where he endeavoured by force of arms, as well as by peaceful means, to strengthen the Lydian power.

His two sons Crœsus and Adramytes were sent to uphold their father's authority in Mysia, where, at the head of the great gulf which bore its name, opposite the island of Lesbos, the city of Adramytteum was founded, as a Lydian commercial settlement, in the heart of the district over which the Phocaic gold coinage prevailed. For the space of nearly a quarter of a century, Crœsus, as his father's viceroy, ruled over the north-western portion of Asia Minor, during which period of uninterrupted prosperity the commercial intercourse between Sardes and the sea was, in this direction, brought to its fullest development.

That the gold coinage of Phocæa and the north-western portion of Asia Minor possessed advantages over the pale electrum of Sardes, as being more widely acceptable in foreign commerce, must have soon become apparent to a man possessed of the insight and sagacity of Crœsus, to whose influence it is doubtless owing that the Phocaic gold stater was engrafted upon the ancient electrum currency of his father's dominions. When therefore, in B.C. 568, he succeeded to the throne of Sardes, one of his first objects was to carry through and develope the monetary reform which had already been commenced by the introduction, during the reign of Alyattes, of the Phocaic stater. No man of his time knew the mission of gold as Crœsus did, and to substitute an imperial currency of pure gold which might be universally accepted both in Greece and in

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Asia, instead of the electrum money of ancient times, was a stroke of policy calculated in the highest degree to raise the prestige of the Lydian power in a commercial point of view over that of any other state.

PERIOD III. REIGN OF CRŒSUS; HIS MONETARY REFORMS.

When Crœsus ascended the throne of the Mermnadæ, one of his first acts was to propitiate the Hellenes on either side of the sea by magnificent offerings of equal value to the great sanctuaries of Apollo both at Delphi and at Branchidæ.[1] He next proceeded to obtain a recognition of his sovereignty from all the Greek cities of Ionia, of Æolis, and of Mysia, which one after another fell into his hands, and were for the most part peaceably incorporated into the Lydian Empire, to which they were in future to pay tribute, retaining at the same time their full autonomy. Henceforth, as Prof. Curtius remarks,[2] "the burdensome stoppages between the coast and the interior were removed, and a free interchange took place of the treasures of the East and West. All the ports were open to Crœsus, and all the maritime population at his disposal; all the industry and sagacity, all the art and science, which had been developed on this coast, were ready to serve him in return for his money. . . . . By his resolution and sagacity he had realized the objects of the policy of the Mermnadæ, which had been pursued with rare consistency through five generations of their house. His empire, acknowledged as one of the great powers of Asia, had been the first among the latter to obtain possession of the sea-coast, and to overcome the opposition between the Hellenes and the Barbarians. Beside being a land power of the interior, feared in all Asia, and based on a well-defined and richly endowed system of landed property, on sturdy popular forces and an efficient army, it included the splendid succession of flourishing sea-ports; and the Pactolus unceasingly rolled his golden sands before the portals of the royal citadel of Sardes."

Crœsus, as we have seen, on his accession found two electrum staters current in his kingdom in addition to the Phocaic gold stater, which he had himself lately introduced; one weighing 220 grains for commerce with Miletus and the Greek cities which had adopted the Milesian standard, and another weighing 168 grains for the purposes of the trade by land with the interior and with Babylon.

Both these electrum staters he abolished at a single stroke, and in their place a double currency consisting of pure gold and pure silver was issued. In the introduction of this new currency, however, a wise regard seems to have been had to the weight of the previously current electrum staters, each of which was thenceforth to be represented by an equal value, though of course not by an equal weight of pure gold. Thus the old Græco-Asiatic electrum stater of 220 grains was replaced by a new pure gold stater of 168 grains, equivalent, like

[1] Herod. i. 46, 50, 92.

[2] Hist. Gr. Eng. Tr. vol. ii. p. 115.

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its predecessor in electrum, to 10 silver staters of 220 grains (one-fifth of the Græco-Asiatic silver mina), as current in the coast towns; and the old Babylonic electrum stater of 168 grains was replaced by a new pure gold stater of 126 grains, equal in value, like it, to one-fifth of the Babylonic silver mina, or to 10 silver staters of 168 grains as now for the first time coined. This latter gold stater possessed moreover the advantage of being also equivalent to one-half of the Phocaic gold stater of 256 grains (maximum), a coin which therefore, very soon after its introduction, became superfluous in the Lydian currency. The *κροίσειος στατήρ*, weighing 126 grains, was therefore equally acceptable, both in the East, where the Babylonian system was universal, and in the West, wherever the Phocaic system had been adopted. Hence the gold pieces of 126 grains were coined in far larger quantities than the heavier pieces of 168 grains, the circulation of which was of a more limited and local character.

Each of these gold staters was divided, according to the ancient Asiatic system, into thirds, sixths, and twelfths, so that there were no less than eight different denominations of gold money issued simultaneously by Crœsus when he reformed the Lydian coinage, one and all bearing the arms of the Imperial city Sardes, the fore-parts of the Lion and the Bull facing each other.

The silver stater, which Crœsus introduced for the first time into Lydia, was so regulated as to stand in the fixed legal proportion of ten to one gold stater of 126 grains. Not that Crœsus was the first to introduce this decimal system, for it had existed in the earlier times, not only in Lydia, but in Babylon, for uncoined gold and silver: the Babylonian silver mina having been constituted of a weight, which at the fixed proportionate value of 13·3 to 1, should exchange for $\frac{1}{10}$ of the gold mina. The manifest convenience of exchange thus secured was, there can be no doubt, the reason why the weights of the silver talent, mina, and shekel were regulated in such a manner that 10 talents, 10 minæ, or 10 shekels of silver should be the recognized price of 1 talent, 1 mina, or 1 shekel of gold. But Crœsus was the first to apply to *coined* silver the ancient Babylonic system; his silver stater of 168 grains being the 50th part of the light Babylonian silver mina, just as his gold stater of 126 grains was the 50th part of the light Babylonian gold mina.

The silver money of Crœsus bore uniformly the same type as the gold, and was divided into halves, thirds and twelfths, weighing respectively 84, 56, and 14 grains. What is especially noticeable in this coinage is the multiplicity of the denominations and the fixity and uniformity of type. This is in fact the earliest Imperial coinage in the history of the world, and to Crœsus must be ascribed the initiation of a currency on a comprehensive scale as distinguished from the more or less local and circumscribed issues of other contemporary States; a currency which was doubtless designed by him to supersede all existing mintages, and to be accepted throughout Asia Minor as the sole Imperial coinage. The object of Crœsus seems to have been to give his Lydian money an international character; hence the extreme care taken that the weight of every denomination should be so fixed and determined as to represent exactly the value of some one or other of the many municipal and local coins current at the time, not only in his own dominions, but in independent Greek cities.

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That this grand attempt to inaugurate a universal currency failed to attain a lasting success is due, not so much to any inherent impracticability in a design which would have been at that time, in a far higher measure than in the present day, a real boon to mankind at large, and a material aid and advancement of future civilizing influences; but its failure was due to events which Crœsus could not foresee, and which, could he have foreseen them, he would have been powerless to ward off.

The following Table may serve to exhibit to the reader the whole system of the Lydian currency as reformed by Crœsus, with all its ingenious and elaborate combinations:—

LYDIA. TIME OF CRŒSUS, B.C. 568–554.

GOLD OF LYDIA.	EQUIVALENTS IN NATIVE AND FOREIGN MONEY OF THE TIME.		
	IN GOLD.	IN ELECTRUM.	IN SILVER.
(i) BABYLONIC SILVER STANDARD.			
𝒜 Stater [Pl. I. 9] 168 grs. =	.....	1 Græco-As. stater . . 224 grs.	10 Græco-Asiatic staters of 224 grs. 20 „ „ ½ „ 112 „ 40 „ „ ¼ „ 56 „
𝒜 Trite . . . . . 56 grs. =	.....	1 „ „ trite . . . 74 „	6 Euboic staters of 124 grs. 12 „ drachms of 62 grs.
𝒜 Hecte . . . . 28 grs. =	.....	1 „ „ hecte 37 „	6 „ „ of 62 „
𝒜 Hemihecton . . 14 grs. =	.....	1 „ „ hemihecton 18 „	3 „ „ of 62 „
(ii) EUBOIC STANDARD.			
𝒜 Stater [Pl. I. 10] 126 grs. =	½ Phocaic stater of 253 grs.	1 Babylonic stater of 168 „	10 Babylonic staters of 168 grs. 20 „ drachms of 84 grs. 30 Græco-Asiatic ¼ staters of 56 grs. 40 Euboic tetrobols of 42 grs.
𝒜 Trite [Pl. I. 11] 42 grs. =	1 𝒜 Phocaic hecte of 42 grs. . . .	.....	10 Græco-Asiatic ¼ staters of 56 grs.
𝒜 Hecte . . . . . 21 grs. =	1 𝒜 „ hemihecton of 21 grs.	.....	10 { Græco-As. trihemiobols / Babylonic diobols } of 28 grs.
𝒜 Hemihecton . . . 11 grs. =	1 𝒜 „ twenty-fourth, 11 grs.	.....	10 Babylonic obols of 14 grs.

SILVER OF LYDIA.	EQUIVALENT IN LYDIAN GOLD.
BABYLONIC STANDARD.	
ℛ Stater [Pl. I. 12] 168 grs. =	$\frac{1}{10}$ of the gold stater of 126 grs.
ℛ ½ Stater [Pl. I. 13] 84 grs. =	$\frac{1}{20}$ „ „ „ 126 grs.
ℛ ⅓ Stater . . . . 56 grs. =	$\frac{1}{30}$ „ „ „ 126 grs.
ℛ $\frac{1}{12}$ Stater . . . 14 grs. =	$\frac{1}{120}$ „ „ „ 126 grs. or $\frac{1}{10}$ of the 𝒜 Hemihecton of 11 grs.

N.B.—In the above Tables fractions of grains are not given.

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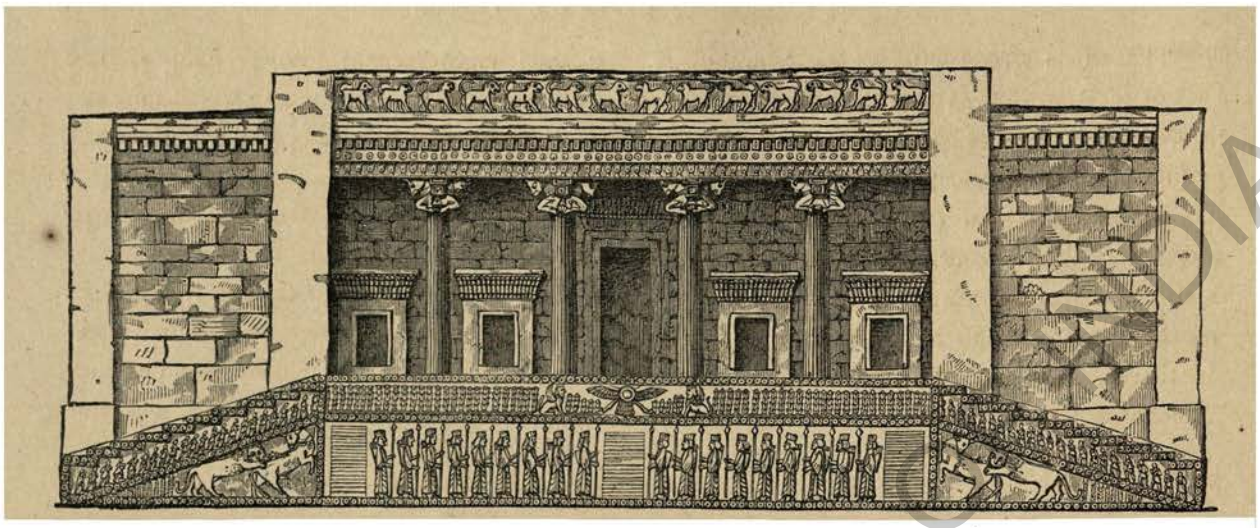

SOUTH FRONT OF THE PALACE OF DARIUS, PERSEPOLIS, RESTORED (AFTER FLANDIN).

PART II.

PERSIA.

The events which led to the downfall of Crœsus from the height of his prosperity and power, and to the incorporation of his dominions, including the Greek coast towns, into the Empire of Cyrus, are too well known to need repetition here. This is commonly supposed to have occurred in the year B.C. 546, but the latest investigations point to the year 554 as the most probable date. But, however momentous the change from a political point of view, nevertheless it is almost certain that no immediate alteration in the coinage was attempted by the new rulers of Western Asia: for it must be remembered that the Persians, like the Medes and Babylonians, were at this time without a specific coinage of their own; the tradition which ascribes the origin of the daric to a King of Persia of the name of Darius, who is said to have been one of the predecessors of Cyrus, being unworthy of credit, as it rests only upon the statement of Harpocration.[1]

The electrum coinage of the Greek cities had already been superseded by the Imperial

[1] s.v. Δαρεικός—οὐχ ὡς οἱ πλεῖστοι νομίζουσιν, ἀπὸ Δαρείου τοῦ Ξέρξου πατρός, ἀλλ' ἀφ' ἑτέρου τινὸς παλαιοτέρου βασιλέως. As Harpocration was an Alexandrian Greek, who lived certainly not earlier than the second century A.D., no value whatever should be attached to a statement of this sort. The whole passage in which it occurs was copied at a later period by Suidas, and again inserted by Musurus in the Aldine edition of the Scholiasts ad Aristoph. Eccles., 602.

Perhaps Xenophon is responsible for the error of Harpocration; for in his Cyropædeia (v. 2, 7) he represents darics as in use in the time of Cyrus I.: ἐπειδὴ δὲ ἔνδον ἦσαν ἐκφέρων ὁ Γωβρύας φιάλας χρυσᾶς καὶ πρόχους καὶ κάλπιδας καὶ κόσμον παντοῖον καὶ δαρεικοὺς ἀμέτρους τινὰς καὶ πάντα καλὰ, καὶ τέλος τὴν θυγατέρα κ.τ.λ. It is needless to say that this work of Xenophon's is a mere romance, and utterly without historical value.

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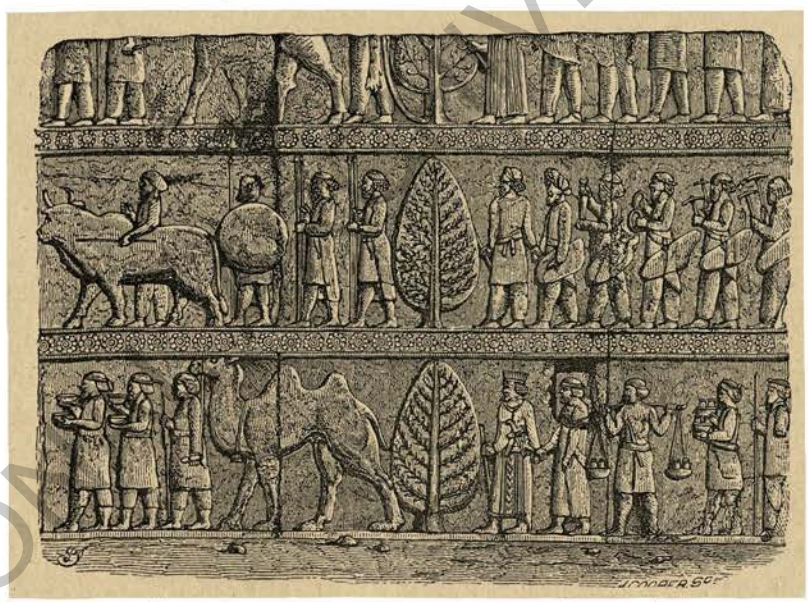
currency of Lydia; and, in the times of distress and impoverishment which followed the Persian conquest, it is unreasonable to suppose that there could have been any revived mintage in these towns with the single exception of Samos, which, under the rule of Polycrates, still maintained its independence until B.C. 520.

Whether or not the Persian Governor of Sardes continued to issue the gold and silver money of Crœsus during the reigns of Cyrus and Cambyses must remain, for the present, a matter for conjecture. It is possible, and even probable, if we may judge from the quantities of these coins which have escaped the Persian melting-pot, that no change was at first made in the arrangements of the Sardian mint, and that both gold and silver money was put into circulation from time to time as necessity required, the old dies being retained, as a matter of course; for it was not part of the policy of Cyrus to introduce uncalled-for changes in the internal government of the various conquered States which contributed to form the vast Empire of Persia. The blending of the motley throng into one homogeneous whole was reserved for the organizing spirit of Darius, the son of Hystaspes, in whose reign the famous Persian "Archers" first went forth into the world.



PERSIAN SUBJECTS BRINGING TRIBUTE TO THE KING (PERSEPOLIS).

The first five years of the reign of Darius were occupied in the extinction of a series of formidable rebellions in various parts of his extensive dominions, and it was not till the year B.C. 516 that he found leisure to devote his mind to the civil organization of his Empire. The division of the whole into Satrapies, at first twenty in number, and the imposition upon each of these principalities of a fixed sum of money to be collected by the several Satraps, and to be paid by them into the royal treasury, was one of the methods which Darius adopted

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for welding into one coherent State, the various Provinces which together constituted the Persian Empire. The assessment of this tribute led to the institution of an Imperial coinage, the first idea of which may have been suggested to Darius by the gold and silver money of Lydia still circulating in the western Satrapies since the time of Crœsus. It is probable also that the manifest advantages of current money, guaranteed by the State, were beginning to be appreciated beyond the limits of Asia Minor, to which it had hitherto been confined; and the system of rapid communication, by means of post horses and couriers, between the most distant portions of the empire and the capital, would naturally tend in no small degree to facilitate the adoption of the Western habit of receiving and paying sums of gold and silver by tale, without having recourse to weights and scales, as had been hitherto the custom in the East.

An Imperial coinage once decided upon, the first and most important consideration for the Great King was necessarily the standard which would be most easily understood by his subjects, and in the choice of this there could not have been room for much hesitation; for, with the exception of Syria, Phœnicia, and the Greek coast towns, where the so-called Græco-Asiatic or Phœnician standard prevailed, the Babylonian gold and silver talents were everywhere in use. Darius had therefore only to follow in the footsteps of Crœsus, by whom the Babylonian standard had already been adopted.

Nevertheless the Persian Imperial coinage differed considerably from that of Lydia, and was as simple as the latter was complex. We have seen that in the Lydian coinage of Crœsus there were no less than eight different denominations of gold money, each of which was regulated in such a manner as to pass readily at a fixed equivalent in the markets of the tributary Greek towns in exchange for the local electrum and silver money of the district, of whatever standard that might happen to be, as may be seen by referring to the table given above (p. 21). Darius could afford to cast all such considerations to the winds. The very extent of his enormous Empire rendered any attempt at following out the minute arrangements of the Lydian royal coinage impracticable. Simplicity therefore is the chief characteristic of the Persian Imperial currency as first determined by Darius. There was to be one denomination of gold and one of silver, the gold piece to be worth 20 pieces of silver. This result might doubtless have been arrived at without issuing a new coinage, by simply retaining the gold stater of Crœsus of 126 grs., and the silver drachm or siglos of 84 grs., and allowing all the other denominations of the intricate Lydian system to fall into disuse: but the type of the Lydian coin, the Lion and the Bull, was hardly appropriate to the money of the Great King, and if, as may well have been the case, this type possessed any symbolic or religious signification, it would moreover have been repugnant to the prejudices of an earnest Zoroastrian like Darius. The image of the Great King himself was accordingly substituted for the Lion and Bull—this one type, which I shall describe more minutely later on, being adopted for the Royal coins of both metals.

Darius, although he selected the gold stater of Crœsus of 126 grs., and his siglos of

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84 grs., as the prototypes of the Persian currency, sought nevertheless to give his new money a prestige of its own, by making a small addition to the weight both of the gold and of the silver coin. These seem to have been fixed respectively at 130 and 86 grs. In this, perhaps, the normal weights of the Babylonian gold and silver talents may have been reverted to, which in their passage westwards and during the lapse of time may be supposed to have suffered some slight diminution.

The metal of the Persian money, especially of the gold coinage, was of remarkable purity, —the daric, according to an analysis furnished by Letronne (Considérations, p. 108), containing only 3 per cent. of alloy. The result was, that the Persian gold coinage immediately obtained a reputation which enabled it to supersede the gold money of all other states, and to maintain its position as the sole gold currency in the ancient world. As long as and wherever Persia was supreme, the coinage of gold remained a prerogative of the Great King.

Not so the silver currency: for the very fact of the siglos being the only Imperial silver piece is sufficient to prove that it could never have been intended to supersede the many smaller and larger denominations necessary for small traffic and retail trade actually current in many districts of the Empire. The silver coinage was not the sole prerogative of the Great King or even of the Satraps, but appears to have been issued by the Great King, by his Satraps, and by large numbers of subject or tributary towns, according to their various requirements.

The coinage of the Persian Empire may be divided into four main categories:—

I. THE ROYAL COINAGE.
II. THE PROVINCIAL COINS WITH ROYAL TYPES.
III. THE SATRAPAL COINAGE.
IV. THE LOCAL COINAGES OF THE TRIBUTARY STATES.

In the following pages I propose to consider the first two of the above classes only. A separate article in the Numismata Orientalia by Prof. Julius Euting, of Strassburg, is, I understand, to be devoted to the coins with Phœnician and Aramaic incriptions, among which those of the Satraps will be included. The local coinages of the Greek tributary cities, although these undoubtedly formed part of the Persian Empire, we may dismiss as beyond the scope of the Numismata Orientalia.

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I. THE ROYAL COINAGE.

Of the Royal Persian Coinage, commencing with Darius, the son of Hystaspes, and ending with the Macedonian conquest, the following varieties are known. The uniformity of style and the absence of inscriptions renders it impossible to classify them according to the several reigns in which they must have been issued.

GOLD.

Darics.

WEIGHT.	OBVERSE.	REVERSE.
129·7	The king, bearded, crowned, and clad in the Persian *candys*, kneeling r. on one knee, at his back a quiver, in his right a spear, and in his outstretched l. a strung bow. [Brit. Mus. Plate. I. 14.]	Irregular incuse of oblong form.
128·7	Similar, of more recent style. [Brit. Mus. Plate I. 15.]	Similar.
127·5	The king, bearded, crowned, and clad in long robe, with belt round waist, and annulets or buttons in front, kneeling r. on one knee; at his back a quiver, in his r. an arrow, and in his outstretched l. a strung bow. [Brit. Mus. Plate I. 16.]	Similar.
132	Youthful king, without beard, wearing on his head the *kidaris*, and clad in long robe, close-fitting and flecked, with sleeves to the elbow and trousers to the knee of the same material. He kneels r. on one knee, and holds spear in r. and strung bow in outstretched l.	Irregular oblong incuse, containing a naked figure seated, with arm raised above head; beside the incuse a countermark? also incuse, representing a bearded head of Pan having stag's horns. The figure within the incuse, as well as the little head of Pan, are of Greek work.

[Mus. Luynes, 132 grs., Brit. Mus. 126·8 grs.]

[Plate I. 17.]

Double Darics.

258	The king, bearded, crowned, and clad in Persian *candys*, kneeling r. on one knee, at his back a quiver, in his r. spear, and in l. strung bow: no letters or symbols. [Coll. de Luynes.]	Irregular incuse, crossed by wavy lines in relief.

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Seven or eight specimens of the double daric, as above described, without letters or symbols in the field, have been published at various times. One of them was found in 1826 near Philadelphia in Lydia. See Madden, Jewish Coinage, p. 273.

Weight.	Obverse.	Reverse.
257·5	Similar. In field, l. wreath; r. M.	Similar.
	[Bank of England. Plate I. 18.]	
257	Similar?	Similar.
	[Cabinet of M. Six.]	
257	Similar. In field, l. wreath; r. X or X.	Similar.
	[Cabinet de France. Plate I. 19.]	
257	Similar. In field, l. A.	Similar.
	[Imhoof-Blumer. Plate I. 20.]	
?	Similar. In field, l. AY.	Similar.
	[Zeitschrift. f. Num. Bd. iii. p. 351.]	
254·5	Similar. In field, wreath.	Similar.
	[Cabinet de France. Plate I. 21.]	
256	Similar. In field, tiara with band?	Similar.
	[Ivanoff 665.]	
257	Similar. In field, l. ΦI.	Similar.
	[Cabinet de France. Another at the Hague. Plate I. 22.]	
255	Similar. In field, l. ⁂.	Similar.
	[Cabinet de France. Plate I. 23.]	
255	Similar. In field, l. ⋋.	Similar.
	[Cat. Hoffmann, Feb. 1874. Plate I. 24.]	
252	Similar. In field, l. ℞.	Incuse square irregularly divided.
	[Coll. de Vogüé.]	

Silver.

Sigli.

83·7	The king, bearded, crowned, and clad in the Persian *candys*, kneeling r. on one knee, at his back a quiver, in his r. a spear, and in his outstretched l. a strung bow.	Irregular incuse of oblong form.
	[Brit. Mus. Plate I. 25.]	

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Weight.	Obverse.	Obverse.
85	The king, bearded, crowned, and clad in long robe, with belt round waist, and ornamented with annulets or buttons in front, kneeling r. on one knee, at his back a quiver, in his r. an arrow, and in his outstretched l. a strung bow. [Brit. Mus. Plate I. 26.]	Similar.
84·7	Similar, but king holds short sword or dagger instead of arrow. [Brit. Mus. Plate I. 27.]	Similar.
83·4	The king, bearded, crowned, and clad in Persian *candys*, kneeling r. on one knee and drawing bow; at his back quiver. [Brit. Mus. Plate I. 28.]	Similar.
82·6	The king, half length, bearded, crowned, and clad in Persian *candys*. He holds short sword in his r. and strung bow in his l. [Brit. Mus. Plate I. 29.]	Similar.

A close examination of the gold darics enables us to perceive that, in spite of their general similarity, there are differences of style. Some are archaic, and date from the time of Darius and Xerxes, while others are characterized by more careful work, and these belong to the later monarchs of the Achæmenian dynasty.[1]

Among these latter are to be classed the double darics, of which about twenty specimens have been published at various times. The double darics, however, are not purely Persian, but bear evidence of having been struck in Greek cities, as the greater number of the known specimens have Greek letters or symbols in the field. The same remark applies to the daric (No. 4) with a portrait of a youthful king, and with a bearded head of Pan of Greek work incuse on the reverse, a symbol which may, however, be a countermark. It is not an easy matter to affirm with certainty to what district of Asia Minor the double darics ought to be assigned; but a comparison of their style with that of the silver staters figured in Pl. III. 14–20 leads me to infer that they were struck in the western portion of Asia Minor.

Herodotus (iv. 166) is the first Greek writer who alludes to the gold money of Darius, who he said was "anxious to leave such a memorial of himself as had been accomplished by no other king;" wherefore, "having refined gold to the utmost perfection, he struck money."

As early as the time of the expedition of Xerxes against Greece, immense numbers of these gold coins must have been in circulation, for the Lydian Pythius had in his own

[1] Lenormant's attempt to attribute the darics to the several reigns according to the differences in the portraits of the king as visible upon them appears to me to be a refinement of classification.

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possession as many as 3,993,000 of them, a sum which Xerxes, by presenting him with 7000 in addition, was munificent enough to make up to the good round total of four million.[1]

It is remarkable that no writer mentions the double daric; hence we may infer that the issue of these coins was restricted probably to a single district, and that they were not minted during any long period of time.

Half-darics are by some supposed to be alluded to by Xenophon in the following passage: *προσαιτοῦσι δὲ μισθὸν ὁ Κῦρος ὑπισχνεῖται ἡμιόλιον πᾶσι δώσειν οὗ πρότερον ἔφερον ἀντὶ δαρεικοῦ τρία ἡμιδαρεικὰ τοῦ μηνὸς τῷ στρατιώτῃ* (Anab. i. 3, 21). None of these coins have been handed down to us, nor do I see that we are bound to take Xenophon's words, *ἀντὶ δαρεικοῦ τρία ἡμιδαρεικά*, to mean literally that each soldier had three golden half-darics promised him every month. I should rather be inclined to take *τρία ἡμιδαρεικὰ* simply to mean a sum of money equivalent to a daric and a half (cf. *τριημι*——, the ordinary way of expressing one and a half).

The royal silver coin is in every respect similar to the daric, and may even sometimes have been called by the same name,[2] but the ordinary appellation appears to have been the *σίγλος Μηδικός*, or simply *σίγλος*. Xenophon (Anab. i. 5, 6) furnishes us with a most valuable datum as to the current value of the *σίγλος* in Attic money, "*ὁ δὲ σίγλος δύναται ἑπτὰ ὀβολοὺς καὶ ἡμιωβόλιον Αττικούς.*" This gives us a weight of 84·37 English grains, which is the full average weight of the sigli that have come down to us. The type of the *σίγλος* is not so constant as that of the daric, and many specimens betray great carelessness of workmanship.

The normal weight of the Persian silver must be placed as high as 86·45 grs., although the average actual weight is only about that given by Xenophon. The siglos was the half of the Perso-Babylonic silver stater of 172·9 grs. so frequently met with in the towns along the south coast of Asia Minor, in Crete and in Cyprus, etc. Consequently it may be correctly designated as a drachm (the term *drachm* being properly applicable only to the half-stater), one hundred of which constituted a Perso-Babylonic silver mina of 8645 grs., and 6000 the talent.

Having thus ascertained the weight of the Persian drachm, it remains to be seen how many of these coins exchanged for one daric. Here again Xenophon comes to our assistance, and supplies us, though indirectly, with the required information in the following passage: *ἐνταῦθα Κῦρος Σιλανὸν καλέσας τὸν Ἀμπρακιώτην μάντιν ἔδωκεν αὐτῷ δαρεικοὺς τρισχιλίους, ὅτι τῇ ἐνδεκάτῃ ἀπ' ἐκείνης τῆς ἡμέρας πρότερον θυόμενος εἶπεν αὐτῷ ὅτι βασιλεὺς οὐ μαχεῖται δέκα ἡμερῶν· Κῦρος δ' εἶπεν. Οὐκ ἄρα ἔτι μαχεῖται, εἰ ἐν ταύταις οὐ μαχεῖται ταῖς ἡμέραις· ἐὰν δ' ἀληθεύσῃς, ὑπισχνοῦμαί σοι δέκα τάλαντα. Τοῦτο τὸ χρυσίον τότε ἀπέδωκεν ἐπεὶ παρῆλθον αἱ δέκα ἡμέραι* (Anab. i. 7, 18). Whence it follows that 300 gold darics were considered by Cyrus the Younger as equal to 1 talent, or, in other words, to 6000 sigli. Hence 5 darics would be worth 1 mina, and 1 daric would be current for 20 sigli. We also see from the

[1] Herod. vii. 28.

[2] Plutarch, Cimon x. 11, *Λέγεται γέ τοι Ῥοισάκην τινὰ βάρβαρον ἀποστάτην βασιλέως ἐλθεῖν μετὰ χρημάτων πολλῶν εἰς Ἀθήνας καὶ σπαραττόμενον ὑπὸ τῶν συκοφαντῶν καταφυγεῖν πρὸς Κίμωνα, καὶ θεῖναι παρὰ τὴν αὔλειον αὐτοῦ φιάλας δύο, τὴν μὲν ἀργυρείων, ἐμπλησάμενον Δαρεικῶν, τὴν δὲ χρυσῶν.*

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above calculation that the relative value of gold to silver in Asia was still as 13·3 : 1, hence:

1 *Attic* Daric of 130 grs. × 13·3 = 1729 grs. of silver =
- 10 Perso-Babylonic staters of 172·9
- 20 Sigli . . . . . of 86·45
- 15 Phœnician drachms . of 115
- 30 ,, drachms . of 57

It is the *Persian* therefore, and not the *Attic* drachm, which we must understand when Harpocration, in his Lexicon, s.v. Daricus, says, *λέγουσι δέ τινες δύνασθαι τὸν Δαρεικὸν ἀργυρᾶς δραχμὰς κ', ὡς τοὺς ἑ Δαρεικοὺς δύνασθαι μνᾶν ἀργυρίου.*

i.e. 1 Daric=20 [Persian] silver drachms.
5 Darics=1 [Perso-Babylonic] silver mina.

There is absolutely no evidence in favour of the opinion which has been advanced by some, that the daric was worth 20 *Attic* drachms, for even in Greece, where gold was cheaper than in Asia, it must have been worth at least 24 Attic drachms, and in all probability passed current for 25, while in Asia it was worth more than 25½, the relative value of coined gold to coined silver in European Greece having been until the time of Philip of Macedon, and according to Brandis (p. 251) even later, as high as 12½ : 1.

Naturally a single silver coin like the Persian drachm could not suffice for the wants of the people, and it was probably at no time the intention of the Great King to supersede the local silver coinages, although the royal money was perhaps the only legally recognized currency, and the only coin accepted by the government at its nominal or current value, all other moneys being simply received by weight, and afterwards melted down and preserved in the royal treasury as bullion until the time came to coin them again into darics and sigli, when just so much and no more than was necessary for the immediate need was put into circulation.[1]

The capital punishment inflicted by Darius upon Aryandes, the Satrap of Egypt, must not be taken as evidence that the Great King reserved for himself the sole prerogative of striking silver as well as gold, for Aryandes was not punished with death for coining silver, but for coining it of finer quality than the money of the Great King; and even this offence was not considered sufficient to warrant his execution, for Darius had to bring another charge against him, viz. that he was planning a rebellion, before he felt himself authorized to order him to be put to death.[2]

[1] Brandis, p. 219. Herod. iii. 89, 96.

ἀρχὰς δὲ καὶ φόρων πρόσοδον τὴν ἐπέτεον κατὰ τάδε διεῖλε. τοῖσι μὲν αὐτέων ἀργύριον ἀπαγινέουσι, εἴρητο Βαβυλώνιον σταθμὸν τάλαντον ἀπαγινέειν· τοῖσι δὲ χρυσίον ἀπαγινέουσι, Εὐβοεικόν. τὸ δὲ Βαβυλώνιον τάλαντον δύναται Εὐβοΐδας ἑβδομήκοντα μνέας. (iii. 89.)

τοῦτον τὸν φόρον θησαυρίζει ὁ βασιλεὺς τρόπῳ τοιῷδε. ἐς πίθους κεραμίνους τήξας κατεγχέει· πλήσας δὲ τὸ ἄγγος, περιαιρέει τὸν κέραμον. ἐπεὰν δὲ δεηθῇ χρημάτων, κατακόπτει τοσοῦτο ὅσου ἂν ἑκάστοτε δέηται. (iii. 96.)

In the first of these passages, and in the calculations which follow it, errors have crept into the text. It has been proved by Mommsen (ed. Blacas, vol. i. p. 28) that instead of 70 Euboic minæ being equal in weight to one Babylonic talent, Herodotus must have written 78. See also Brandis, p. 63, sq.

[2] Herod. iv. 166: *ὁ δὲ Ἀρυάνδης . . . . . ἰδὼν Δαρεῖον ἐπιθυμέοντα μνημόσυνον ἑωυτοῦ λιπέσθαι, τοῦτο τὸ μὴ ἄλλῳ εἴη βασιλέϊ κατεργασμένον, ἐμιμέετο τοῦτον· ἐς οὗ ἔλαβε τὸν μισθόν. Δαρεῖος μὲν γὰρ χρυσίον καθαρώτατον ἀπεψήσας ἐς τὸ δυνατώτατον, νόμισμα ἐκόψατο· Ἀρυάνδης δὲ, ἄρχων Αἰγύπτου, ἀργύριον τὠυτὸ τοῦτο ἐπόιεε· καὶ νῦν ἐστὶ ἀργύριον καθαρώτατον τὸ Ἀρυανδικόν. μαθὼν δὲ Δαρεῖός μιν ταῦτα ποιεῦντα, αἰτίην οἱ ἄλλην ἐπενείκας, ὡς οἱ ἐπανιστέαιτο, ἀπέκτεινε.* This silver money was still circulating in the time of Herodotus, but no specimens are now known, for Brandis has restored to Phœnicia (Kings of Byblos) the coins formerly attributed to Aryandes by Ch. Lenormant. The inscription APTAN, said by some to be legible on one or more of these coins, is not sufficiently distinct to warrant us in transferring to Aryandes a series of coins so manifestly Phœnician in character as the pieces alluded to.

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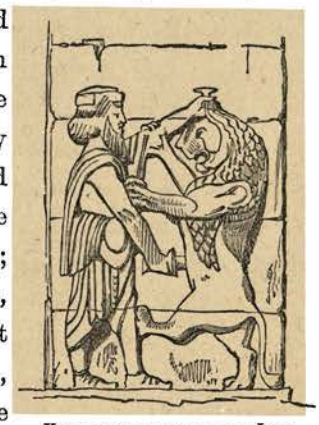
II. THE PROVINCIAL COINS WITH ROYAL TYPES.

PERSIAN KING HUNTING THE LION, FROM THE SIGNET-CYLINDER OF DARIUS-HYSTASPIS.

Under this head I propose to include several distinct series of coins, which, however, have this in common, viz. that they all bear evidence of having been issued under the auspices of the Great King. On some he will be seen in his chariot accompanied by his charioteer and engaged in the favourite royal pastime of the chase; on others also in his chariot, but in stately procession, and followed by an attendant, who holds over him a standard or sceptre; on others, contending with a rampant lion, which he seizes by the mane, and is about to stab with a short sword; while on others again we shall see him, as on the Imperial coinage, as a kneeling archer. On another, and a distinct series, his portrait only will appear wearing the tiara, and sometimes the word *Βασιλεύς*, accompanying some merely local type, will sufficiently prove that the coin was issued by some city subject to the authority of the King.



KING CONTENDING WITH A LION (PERSEPOLIS).

It will not be always possible to say in what locality, or under whose reign, these various coins were struck; but that they were current in different districts of the Persian Empire in the time of the successors of Darius there can be no room for doubt. Neither can it be a matter for dispute that these several currencies are provincial or local in character rather than Imperial, for the weight-systems according to which they are regulated enable us to define within certain limits the districts of the empire in which they must have circulated.

Of these districts the most important is that which lay between the Euphrates and the Phœnician sea, which formed part of the Ninth and Fifth Satrapies of the Empire. In the interior of this district were situated the important cities of Thapsacus on the Tigris, the residence of the Satrap of Syria, of Bambyce, of Chalybon, of Hamath, and of Damascus, where was a royal treasury; while on the coast were the far-famed Phœnician towns of Sidon, of Tyre, of

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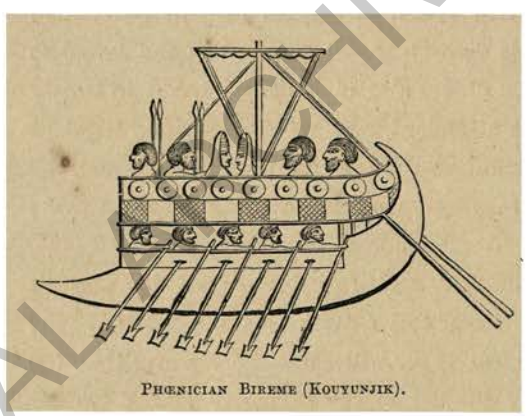
Byblus, of Aradus, of Marathus, and others. These latter, for the most part governed by their own kings, struck also their own coins, municipal or regal, which may, for convenience sake, be distinguished from those which bear Persian types, and which I shall not include in the present article. Whether the Phœnician cities on the sea-coast, or the Syrian towns on the upper reaches of the Euphrates, are the places where the coins which I am about to include in Series I. and II. were minted, it is difficult to determine with certainty. The weight-system of this currency is identical with that which is prevalent on the Phœnician coast at the cities of Tyre, Byblus, and Aradus; while the fact that specimens of these coins have been found in the Tigris is no proof of a Syrian origin, and perhaps only indicates the course of the Phœnician trade with the interior, and shows that the Phœnician system of weights and money extended from the Tigris and the Euphrates to the sea.

It will be seen from the description which follows how much these pieces have in common with the recognized money of Phœnicia both in type and fabric. Indeed, were it not that the forms of some of the letters upon a few of the inscribed specimens seem to be of an Aramaic rather than a purely Phœnician character, all the evidence would be in favour of the coins which follow being Perso-Phœnician rather than Perso-Syrian.



Phœnician Bireme (Kouyunjik).

SERIES I.

CLASS 1.

Phœnician Standard.

Double Shekel or Octadrachm.

Weight.	Obverse.	Reverse.
422·8	Phœnician war-galley, with mast, sails, and oars advancing l., beneath, waves; the whole within a border of dots.	Incuse square, within which the king accompanied by charioteer in quadriga l., the horses walking. In the upper portion of the square is the fore-part of a wild goat standing towards l. with head looking r., the goat incuse.

[Brit. Mus. Plate II. 1.]

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$\frac{1}{2}$ *Shekel or Didrachm.*

Weight.	Obverse.	Reverse.
105	Similar to preceding.	Incuse square, within which the king as archer standing r. and drawing bow. In front of him the head of a wild goat, incuse r., and behind him the face of another goat l., also incuse.

[Brit. Mus. Plate II. 2.]

$\frac{1}{16}$ *Shekels or Obols.*

12·8	Similar.	Incuse square, within which the king as archer, kneeling r., drawing bow.

[Brit. Mus. Plate II. 3.]

11	Similar.	The king as archer standing, drawing bow.

[Mus. Vogüé, Brandis, p. 427.]

These four coins are remarkable as furnishing us with a representation of a war-galley under sail, a type which points clearly to Phœnicia, for on the Tigris and Euphrates ships of this description with sails were never used. The reverse types, on the other hand, are clearly Persian, and the union of the two seems to indicate that this class of coins was issued for the convenience of the traders between the interior and the coast. The place of mintage may therefore have been Tyre, whose close commercial relations with Syria and with the interior of Asia generally are well known, cf. Ezekiel, xxvii., who, in his picture of the glory of Tyre, says, "Syria was thy dealer from the multitude of thy fabrics: with jewels and purple and embroidery and cotton and corals and rubies they furnished thy markets. . . . . Damascus was thy dealer in the multitude of thy fabrics from the abundance of all riches, in the wine of Helbon (*Χαλυβών*, Aleppo) and white wool."

The obverse type of these coins would seem, as is not unfrequently the case in the archaic period, to be the one which indicates the place of issue. The Persian reverse in the present instance is perhaps only intended as an assertion of the supremacy of the Great King, and as a sort of guarantee that the coins should pass current in the interior as well as in Phœnicia. The two types taken in this sense as having a double reference to the actual place of mintage, governed by its own semi-independent rulers, and to the lands under the direct government of the Great King, may be compared with the double inscriptions on the Lion weights of an earlier age in Cuneiform and in Phœnician characters: "Fifteen manehs of the King—fifteen manehs of the country. Five manehs of the King—five manehs of the country," etc. etc.

Of the cities of Phœnicia, Tyre is one to which, in my opinion, the type of the obverse seems to point with especial appropriateness. Ezekiel (chapter xxvii.) had already likened this city, seated in the midst of the waters, to a ship. "Thy borders are in the heart of the waters; thy builders have perfected thy beauty. They have made all thy planks of fir from Shenir; they have taken cedar from Lebanon to make thee a mast. Of the oaks of

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Bashan they have made thine oars; thy row-benches of ivory in box from the coasts of Chittim. Fine linen with embroidery from Egypt was spread out for thy sail; thine awning was of blue and purple from the coasts of Greece. The inhabitants of Zidon and Arvad were thy mariners. Thy skilful men, O Tyre, were in thee as pilots," etc. etc.[1]

The large size of some of these coins is also an indication of their having been minted by some city of great commercial renown, such as Tyre, which was at one time pre-eminent among all the cities of the Persian Empire in this respect, although the claims of Sidon ought not to be overlooked.

The types of the reverses of the coins above described, although most distinctly Persian in character, betray nevertheless a peculiarity of workmanship which would seem to have been not unusual in Phœnicia. I allude to the strange habit of making an incuse addition to the type in the shape of an animal, which is sometimes a symbol, as on these coins, and sometimes forms an integral part of the type, as on the coins of some of the Kings of Byblus (see Brandis, pp. 511–12). This incuse addition must not be mistaken for a countermark. In the present instances the fore-part of the ibex or wild goat is added to the main type on the octadrachm, perhaps to convey the idea that it is the ibex which the Great King is represented as setting out in his chariot to hunt. This animal is enumerated among others as frequently hunted by the early Assyrian kings in the region of the Upper Tigris and in Syria (Rawlinson, Anc. Mon., 1st ed. vol. i. p. 279). It is also mentioned by Xenophon (Cyrop. i. 47) as one of the animals hunted by Cyrus.

[1] The translation as given above is from Mr. Kenrick's Phœnicia, p. 193.

PERSIAN KING KILLING WILD GOAT (FROM A CYLINDER).

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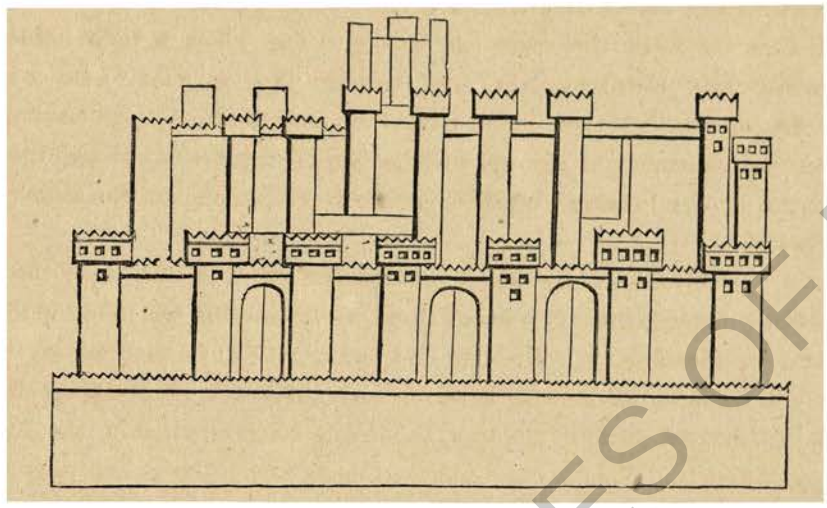

FORTIFIED PLACE BELONGING TO AN ENEMY OF THE ASSYRIANS (NIMRUD).

CLASS 2.

PHŒNICIAN STANDARD.

Double Shekels or Octadrachms.

WEIGHT.	OBVERSE.	REVERSE.
425	City-wall with five battlemented towers, before which lies an armed galley. At the stern is a standard, surmounted by a disc and crescent. In the exergue are two lions back to back. Above the exergual line the Phœnician letters 𐤀𐤉 . . . cable border.	Incuse circle and dotted border, within which the king and his charioteer in quadriga, l.; horses galloping; beneath the horses an ibex or wild goat, *incuse*, stretched out towards l., its head turned right. Under the goat a Phœnician inscription (retrograde?) 𐤏𐤁𐤃?

[Brit. Mus. Plate II. 4.]

414·5	Similar. (To right of wall a man standing.) No inscription.	Similar, (man behind chariot,) beneath . . 𐤃𐤏?

[Brit. Mus. Plate II. 5.]

426	Similar.	Similar, but border within circle plain. No inscription, and no figure behind chariot.

[Brit. Mus. Plate II. 6, reverse only engraved.]

416·2	Similar.	Similar, border dotted. Above chariot in field, l. the Phœnician letters 𐤏𐤑.

[Brit. Mus., much worn.]

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The above described pieces are all in the British Museum. Nos. 2 and 3 are said to have been found in the Tigris in the year 1818. They were originally in the collection of Mr. Rich. I give the Phœnician letters as I see them. Though very indistinct, they are certainly Phœnician characters, and in no case Greek. This leads me to infer that the letters on a similar coin in the Behr Collection (No. 839), which M. F. Lenormant read AYPA, and explained as the beginning of the name Aryandes, retrograde, are probably also Phœnician, and that they have been misread by Lenormant; for Brandis, on the same coin, failed to decipher the letters AYPA.

With the reverse type may be compared the signet cylinder of Darius, the son of Hystaspes, now in the British Museum (engraved above, p. 31), representing the King with his charioteer hunting the lion. The action of the horses and the position of the dead lion beneath them, bear so striking a resemblance to our coins that we shall not be far from the truth if we attribute them to the same period.

½ *Shekels or Didrachms.*

Weight.	Obverse.	Reverse.
107·6	City-wall, with four battlemented towers, before which lies an armed galley l. In the exergue are two lions back to back. Border of dots.	Incuse square, within which, the king, crowned, and clad in *candys*, his arms bare, standing l., and seizing with his left hand a rampant lion by the forelock, and about to stab him with a dagger which he holds in his r. Between them an uncertain letter?

[Brit. Mus. Plate II. 7.]

97·9	Another re-struck on a half-shekel of the type of Class 1, No. 2. Of the older type the waves of the sea are visible on the right side of the coin.	Similar. No letter.

[Brit. Mus. Plate II. 8.]

99·4	Similar type; above the city-wall the letter 9.	Similar.

[Brit. Mus. Plate II. 9.]

103·7	Similar type; above the city-wall the letters 90.	Similar; between king and lion 90.

[Brit. Mus. Plate II. 10.]

With these didrachms may be compared a Persian cylinder engraved above, page 34, where the King is seen killing an ibex in the same way precisely as he kills the lion on the coins.

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The Persian King is also often represented in the Persepolitan sculptures as slaying a monster in the same attitude as upon the coins.

KING KILLING A MONSTER (PERSEPOLIS).

$\frac{1}{16}$ Shekels or Obols.

WEIGHT.	OBVERSE.	REVERSE.
10·8	City-wall, with three battlemented towers, before which lies an armed galley l. The standard at the stern, as in No. 1 of this class, plainly visible. In ex. lion l.	Incuse square, within which the king, as archer, standing r. and drawing bow, in front of him, the head of a wild goat *incuse* r., and behind him the face of another goat l. also *incuse*, as on No. 2 of Class 1.

[Brit. Mus. Plate II. 11.]

10·8	Same.	Same.

[Brit. Mus. Plate II. 12.]

$\frac{1}{32}$ Shekel or Hemiobol.

6	City-wall, with three battlemented towers, before which, galley, l.	The king as archer kneeling, in his l. bow, in his r. lance.

[Turin Mus. Found at Aleppo.]

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CLASS 3.

PHŒNICIAN STANDARD.

$\frac{1}{4}$ *Shekel or Drachm.*

WEIGHT.	OBVERSE.	REVERSE.
51·4	Head of goddess (Astarte ?) r. wearing stephane: border of dots.	Incuse square, within which, on a slope, *glacis*, city-wall, with three battlemented towers, behind which two palm-trees.

[Brit. Mus. Plate II. 13.]

$\frac{1}{16}$ *Shekel or Obol.*

10·6	Similar head.	Incuse square, within which, on a glacis, city-wall, with three battlemented towers, behind which two palm-trees. On the glacis in front of the fortification a wild goat is stretched out *in relief*. Cf. the *incuse* goat on the octadrachms.

[Brit. Mus. Plate II. 14.]

The coins of the above series, 17 in number, although of various types, have much in common, *e.g.* the Goat, which is seen on nine of them, with one exception always incuse; also the fortified city, which is seen on thirteen out of the 17; this last-mentioned type being doubtless a representation of the city where the coins were struck. The galley lying in front of the city-wall shows that this town must have been situated by the sea or on a river; while the Phœnician letters occurring on several specimens, although they have never been satisfactorily explained, some indeed being here given for the first time, would seem to point to the Phœnician coast; and among all the Phœnician towns Tyre is, perhaps, the most probable place of mintage, for her situation on a rocky island, surrounded by a fortified wall, answers to the types of these coins with singular appropriateness.

SERIES II.

The second series of provincial coins in many ways resembles that which has been already described, but the points of divergence are no less clearly marked than those of resemblance.

This series, like Series I., may be divided into several classes, which are to be distinguished by the inscriptions 𐤏, 𐤏𐤇, 𐤏𐤏, 𐤐𐤏, and 𐤆𐤓𐤔𐤕.

The coins of these five main classes are all of them clearly later in date than those of Series I.; the specimens are, moreover, generally dated, the dates commencing with year 1 under each separate class. The dates at present recorded are the following:

Class 𐤏	No dates.
,, 𐤏𐤇	Years 1, 3, 13.
,, 𐤏𐤏	,, 1, 2, 3.
,, 𐤐𐤏	,, 1, 2, 3, 4, 5, 6, 7, 8, 12, 13.
,, 𐤆𐤓𐤔𐤕	,, 1, 2, 9, 20, 21.

NATIONAL ARCHIVES OF INDIA

Brandis has suggested that these five classes may correspond with the reigns of the five Kings of Persia, Xerxes B.C. 486–465; Artaxerxes I. 465–424; Darius II. 424–405; Artaxerxes II. 405–359; Artaxerxes III. 359–338, chiefly, I imagine, because in no case do the dates upon the coins transgress the limits of the several reigns.

CLASS 1.

Double Shekels or Octadrachms.

Weight.	Obverse.	Reverse.
426·2	Armed galley with oars advancing l., in the stern a standard surmounted by a disc and crescent, beneath galley, waves; above it 9: cable border.	Incuse circle, within which the king with his charioteer in quadriga l., horses walking; behind follows an attendant carrying a one-handled vase and a sceptre or standard ending in an animal's head? Cable border.

[Brit. Mus. Plate II. 15.]

430	Similar (no letter).	Similar.

[Brandis, p. 424.]

½ Shekel or Didrachm.

97·3	Armed galley with oars advancing l., in the stern a standard, beneath, waves; above, 9: cable border. Above the galley is the Phœnician letter 4, and in front apparently ϵ (' ?) both *graffito*.	Similar type.

[Brit. Mus. Plate II. 16.]

The Galley on these coins bears in the stern the same standard as the galley which lies before the walls of the fortified town on the coins of Series I. This standard, which consists of a disc surmounted by a crescent, may be compared with a similar one which occurs on a sardonyx inscribed with the name of Abibal, King of Tyre, engraved in de Luynes' Satrapies, pl. xiii. No. 1. The weight of the octadrachms of this class fully comes up to that of the earlier coins—a fact which is conclusive as showing that the coins of this class stand first in the second series. Whether they are Tyrian is doubtful; but that they belong to the Phœnician coast can, I think, hardly be disputed.

$\frac{1}{16}$ Shekels or Obols.

12·6	Similar galley l., above, 9.	King contending with a rampant lion: between them, O.

[Brit. Mus. Plate II. 17.]

12	Similar (no letter).	Similar. Between them a cock and O.

[Brandis, p. 425.]

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On these small coins the letter 𐤑 on the obverse should perhaps be taken as a portion of the legend 𐤑𐤏 or 𐤏𐤑, the 𐤏 being placed on the other side of the coins.

CLASS 2.

Double Shekels or Octadrachms.

Weight.	Obverse.	Reverse.
393·5	Armed galley with oars advancing l., in the stern a standard, surmounted by a disc and crescent. In the prow an armed man? beneath, waves; above, 𐤉 (year 1): border of dots.	The king with his charioteer in quadriga l., horses walking; behind, attendant carrying goat-headed sceptre and vase; above, 𐤏𐤓: border of dots.

[Brit. Mus. Plate II. 18.]

397	Similar. 𐤉𐤉𐤉 (year 3).	Similar.

[Coll. de Luynes.]

$\frac{1}{16}$ *Shekels or Obols.*

10	Galley l. as above (no date).	Incuse square, within which king contending with lion: between them 𐤏𐤓 ?

[Brit. Mus.]

12	Similar. 𐤉𐤉𐤉– (year 13).	Similar, 𐤏𐤓.

[Paris.]

With this class the weight of the octadrachm falls from about 430 to about 400 grs., and all traces of the incuse square or circle have disappeared on the larger specimens. The interpretation of the Phœnician letters I leave to those who are capable of giving an opinion on the matter; one thing, however, seems certain, that letters which vary on coins otherwise identical, can hardly stand for the name of the city where the coins were struck, unless indeed we presume the existence of a federation of towns using the same coin-types, for which there is no evidence.

CLASS 3.

Double Shekels or Octadrachms.

397·7	Galley as before. Above, 𐤉 (year 1).	The king with his charioteer in quadriga l., horses walking; behind, attendant carrying sceptre and vase; above, 𐤏𐤏: border of dots.

[Mus. Luynes.]

398·2	Similar. 𐤉𐤉 (year 2).	Similar.

[Brit. Mus. Plate II. 19.]

400	Similar. 𐤉𐤉𐤉 (year 3).	Similar.

[Paris.]

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$\frac{1}{16}$ Shekels or Obols.

Weight.	Obverse.	Reverse.
10·1	Similar. II (year 2).	Incuse square, within which king contending with lion; between them OO.
	[Brit. Mus. Plate II. 20.]	
10	Similar (no date).	Similar.
	[Coll. de Vogüé.]	

CLASS 4.

Double Shekels or Octadrachms.

398·5	Similar. I (year 1).	Quadriga, etc., as before; above, ϙO.
	[Brit. Mus.]	
398	Similar. II (year 2).	Similar [ϙO].
	[Brandis, p. 425.]	
395	Similar. III (year 3).	Similar.
	[Brit. Mus. Plate III. 1.]	
397	Similar. III (year 3).	Similar [ϙO].
	[Paris.]	
388·5	Similar. IIII (year 4).	Similar.
	[Brit. Mus.]	
395·9	Similar. II III (year 5).	Similar.
	[Brit. Mus.]	
399	Similar. IIII III (year 7).	Similar.
	[Brandis, p. 425.]	
397	Similar. II⁻ (year 12).	Similar.
	[Paris.]	
395·4	Similar. Uncertain date.	Similar.
	[Brit. Mus.]	
386 5	Similar (double struck).	Similar.
	[Brit. Mus.]	

½ Shekels or Didrachms.

94·8	Similar. III (year 3).	ϙO. Similar type, no attendant.
	[Brit. Mus. Plate III. 2.]	
98	Similar. IIII IIII (year 8).	Similar.
	[Paris.]	

¼ Shekels or Drachms.

49	Similar. I (year 1).	ϙO. Similar.
	[Coll. de Luynes.]	
50	Similar. \ *sic* (year 1).	Similar.
	[Paris.]	

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Weight.	Obverse.	Reverse.
49	Similar. 𐤉𐤉𐤉 𐤉𐤉𐤉 (year 6).	Similar.
	[Bank of England. Plate III. 3.]	
47	Similar. 𐤉𐤉𐤉 𐤉𐤉𐤉𐤉 (year 7).	Similar.
	[Coll. de Vogüé.]	
	$\frac{1}{16}$ *Shekels or Obols.*	
10	Similar. 𐤉𐤉 (year 2).	𐤏𐤀 King and Lion as before.
	[Brandis, p. 426.]	
13	Similar. 𐤉𐤉𐤉 (year 3).	Similar.
	[Paris.]	
12	Similar. 𐤉 𐤉𐤉𐤉𐤉 (year 5).	Similar.
	[Coll. de Luynes.]	
10·4	Similar. 𐤉𐤉𐤉– (year 13).	Similar.
	[Brit. Mus. Plate III. 4.]	

The coins of this class are more numerous than any of the others. From No. 3 (engraved on Pl. III. Fig. 1), an unusually fine specimen, it appears that the sceptre carried by the attendant is surmounted by an animal's head with long ears of Egyptian style. On No. 1 of Class 2, with 𐤀𐤓, it resembles the head of a goat, the beard being clearly visible, with this may be compared the heads of this animal, incuse, on the coins of Series I.

CLASS 5.

Double Shekels or Octadrachms.

396	Similar. Above 𐤄.	Quadriga as before, above 𐤆𐤓𐤒𐤄.
	[Coll. de Vogüé.]	
396·7	Similar. Above 𐤉𐤄 (year 1).	Similar.
	[Brit. Mus.]	
398	Similar. Above 𐤉𐤉𐤄 (year 2).	Similar.
	[Coll. de Luynes.]	
398	Similar. 𐤂𐤄 (year 20). This date is accompanied by the letter 𐤀 (*graffito*).	Similar.
	[Paris. Plate III. 5.]	
397·2	Similar. 𐤉𐤂𐤄 (year 21).	Similar.
	[Brit. Mus.]	
398·5	Similar. 𐤉𐤂 ? (year 21 ?).	Similar.
	[Brit. Mus.]	
	$\frac{1}{16}$ *Shekels or Obols.*	
10·5	Similar. 𐤉𐤉𐤉 𐤉𐤉𐤉 𐤉𐤉𐤉 (year 9).	King and lion as before, between them 𐤒𐤄.
	[Brit. Mus. Plate III. 6.]	

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Weight.	Obverse.	Reverse.
13	Similar. Above 𐤩 and ○.	King and lion.
	[Berlin.]	
11	Similar. Above 𐤀𐤓𐤔.	Similar, between them, cock.
	[Coll. de Luynes.]	

The coins of this class are in many respects different from all which precede, although the types are the same. In the first place, the style of art has become almost barbarous: witness the elongated figure of the king on one of the coins of year 21, where he is enormously out of proportion to the size of the chariot.

In the next place, the fabric is peculiar, the edges of the coins being often hammered flat as on the double darics. The forms of the letters are also different, the Aramaic form 𐤩 taking the place of 𐤑. The inscription on the reverse 𐤆𐤂𐤆𐤄 has been read מזדי or מזרי. This word occurs frequently on the autonomous coins of Tarsus in the fourth century B.C., and under the Seleucide rule, see Brandis, pp. 500, 501; also on the Satrapal coins of the same city (Brandis, p. 430). But at Tarsus the forms of the characters are somewhat different: 𐤄𐤉𐤉𐤄 instead of 𐤆𐤂𐤆𐤄. Nevertheless, that these are two forms of one and the same word has been recognized by all (see Waddington, Mélanges, 1861, p. 70; Levy, Phœn. Stud. 1857, p. 40), although all are not agreed as to the meaning of the word. Levy reads it Mazdi (for Ahuramazda). Blau, on the other hand, compares it with the Zend *mizda*, 'pay.' On the obol the word is abbreviated 𐤆𐤄. Brandis looks upon it as equivalent to the Greek *ἀργύριον* or *κόμμα* on the silver staters of Seuthes, and this is perhaps, on the whole, the most probable interpretation.

As to the attribution of the coins with this inscription, I am inclined, chiefly on account of their fabric, to doubt whether they are Phœnician, like the coins of the other classes. The types of the widely-circulating Perso-Phœnician coins may well have been adopted by some inland district or city of Syria, possibly Thapsacus, which would fully account for the difference of fabric and for the varying forms of the letters. Thapsacus may also have been in close commercial relations with Tarsus, with which it was connected by the route which passed through Berœa (Aleppo) and the Syrian gates. This would account for the use of the word מזדי on the coinage of the two cities.

Before passing to the next series, we must not omit to mention certain small copper coins, which, by their types, attach themselves to the Perso-Phœnician silver coins of the second series described above. These may be divided into three classes as follows.

CLASS I.

Obverse.	Reverse.
The king and his charioteer in quadriga l., horses walking: border of dots.	Phœnician galley to l.; beneath, waves.
[Brit. Mus. Plate III. 7.]	

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CLASS II.

Obverse.	Reverse.
The king kneeling r. holding bow in l. and spear in r.: border of dots.	Galley as before.

[Brit. Mus. Plate III. 8.]

Similar.	Similar. III (year 3).

[Brandis, p. 549.]

Similar.	Similar. III II (year 5).

[Brit. Mus.]

Similar.	Similar. III III (year 6).

[Brit. Mus.]

CLASS III.

Head of king, bearded, r. wearing tiara.	Phœnician galley l.; above, I⁻ (year 11).

[Brit. Mus.]

Similar.	Similar, II⁻ (year 12).

[Paris. Plate III. 9.]

As these copper coins can hardly have been issued before the middle of the fourth century B.C., they afford an indication of the date of the later silver coins, with which they correspond.

It will be well also to notice in this place several other coins, which may be compared with those of Series II. Of these the most remarkable is one of the two didrachms which bear the name of Abd-Hadad. (Brandis, p. 431.)

Bambyce.

Attic Standard.

Didrachm.

Weight.	Obverse.	Reverse.
132	Head of the goddess Atergatis l. with long hair and lofty head-dress. Behind, the date ∩O (year 30).	𐤏𐤁𐤃𐤄𐤃 (Abd-Hadad). The King accompanied by his charioteer in quadriga l.

[Mus. Luynes. Plate III. 10.]

M. Waddington (Mélanges, 1861, p. 90) gives good reasons for attributing this coin to a dynast or satrap of the name of Abd-Hadad, who ruled at Bambyce (Hierapolis) in Syria. The date, year 30, M. Waddington thinks, can only refer to the reign of Artaxerxes Mnemon.

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The coin would therefore have been struck in B.C. 375, another indication of the date of the Perso-Phœnician coins of Series II., from which its reverse type is imitated.

There are also two coins in the Hunterian Museum at Glasgow, one of which is of Tarsus, and the other of some Phœnician town, which reproduce the type of the king contending with the lion.

TARSUS.

PERSIAN STANDARD.

Stater.

WEIGHT.	OBVERSE.	REVERSE.
168	The king contending with a rampant lion which he is about to stab with his sword.	The king or a warrior holding a lance in his r. and a crux ansata in his l.; in front, TEPΣI; behind 𐤕𐤓𐤆 (תרז) and a flower.

[Mus Hunter. Plate III. 11.]

UNCERTAIN PHŒNICIAN CITY.

Stater.

166	Similar.	𐤀𐤋𐤐. Incuse square, within which is a cow suckling her calf; border of dots.

[Mus. Hunter. Plate III. 12.]

The inscription on this coin remains unexplained, but the forms of the letters point to Phœnicia rather than Cilicia.

The following coin of Tarsus may be also here mentioned, as it bears on its reverse the type of the royal Persian money.

TARSUS.

Stater.

168	Horseman l. holding flower, in exergue 𐤕𐤓𐤆?	Incuse square. The king as archer kneeling r.; behind, crux ansata.

[Mus. Hunter. Plate III. 13.]

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SERIES III.

The third series of provincial coins with royal Persian types may be divided into two classes according to the standards of weight which the coins respectively follow. These are first Græco-Asiatic and secondly Persian.

CLASS 1.

GRÆCO-ASIATIC (RHODIAN SYSTEM).

Staters.

WEIGHT.	OBVERSE.	REVERSE.
216	The king as archer kneeling, r. drawing bow: border of dots.	Horseman wearing the low tiara of the Satraps galloping, r. armed with spear.
	[Brit. Mus.]	
232	Similar.	Similar.
	[Cabinet of M. Six.]	
(?)	Similar; in front O.	Similar.
	[Cat. Behr. No. 851.]	
(?)	Similar; in front OOOX.	Similar.
	[Mionnet. Supp. viii. p. 428, No. 38.]	
232	Similar; in front OO.	Similar; in front star.
	[Munich.]	
230	Similar; in front thunderbolt.	Similar; no symbol.
	[Berlin.]	
224	Similar; behind, Ψ and lion's head r.	Similar; beneath, bird, r.
	[Cabinet of M. Imhoof-Blumer.]	
223	Similar; no symbol or letter.	Similar; in field ⊙.
	[De Luynes Coll.]	
224	Similar.	Similar; behind, eagle's head.
	[Brit. Mus.]	
227	Similar.	Similar; behind O, beneath, dolphin r.
	[Brit. Mus. Plate III. 14.]	
231	Similar.	Similar.
	[Paris.]	
227·2	Similar.	Similar; behind, a head of Herakles in lion's skin.
	[Brit. Mus. Plate III. 15.]	
259	Similar.	Similar.
	[Imhoof-Blumer.]	

COPPER.

The king kneeling r. holding bow and spear. | Horseman galloping, r. armed with spear.

Size 2 of Mionnet's scale = ·5 inch.

[M. Six. Plate III. 16.]

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The silver staters described above are by no means easy to attribute. One valuable indication is however afforded by their weight, which rises as high as 232 grs., and must therefore be considered as of the Rhodian system, which was in use from the year 408, the date of the foundation of Rhodus, until the time of Alexander the Great, throughout the greater portion of the western and south-western coast lands of Asia Minor. We do not find it in Cilicia or in Phœnicia.

It is therefore to the western, or, more strictly speaking, to the south-western, portion of Asia Minor, that I should be inclined to attribute this series of coins, and the *provenance* of some at any rate among them (the island of Calymna) is in favour of this attribution (see Borrell, Num. Chron. o.s. vol. ix. p. 165). In style and fabric they appear to me to be intermediate between those of Class 2 (Pl. III. 17), which, as I shall show, belong to Cilicia, and those of Series IV. (Pl. III. 18–20), which are probably Ionian. In weight they agree with the latter, while in fabric they more nearly resemble the former. They date perhaps from about the commencement of the fourth century B.C.

CLASS 2.

Persian Standard.

Stater.

Weight.	Obverse.	Reverse.
163	The king kneeling r., in his l. bow, in his r. lance.	The king kneeling r. holding in his l. bow and with his r. drawing an arrow from a quiver at his shoulder.

[Paris.]

This coin is countermarked with a bull or cow surmounted by two letters generally read ΙΩ, but perhaps rather ΙΜ.

163	Similar.	Similar.

[Munich. Plate III. 17.]

This coin has two countermarks, one of which is identical with that upon the Paris specimen, while the other contains an eagle and a trident.

161	Similar.	Similar.

[Leake, As. Gr. 80.]

This coin is countermarked with a bull and another animal.

Mallus.

160·5	The king kneeling r., in his l. bow, in his r. lance.	ΜΑΛ Herakles strangling lion; in field, club.

[Hunter 185.]

The coin is countermarked with a bull and the same two letters.

160·3	Similar.	Similar, in field, grain of corn.

[Leake, As. Gr. 80.]

Same countermark.

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These coins of Mallus fix the attribution to Cilicia of those which bear no inscription. The peculiar countermark, which recurs so frequently, is met with also on other coins of this district, among which may be mentioned four coins of Side in Pamphylia (De Luynes, pl. i., ii. and iii. 5, of which last there is another specimen in the British Museum), another coin of Mallus (De Luynes, pl. vi.), one of Soli (Hunter, 51, 30), and one of Celenderis (Brit. Mus.).

The letters over the back of the cow in this countermark have been read ΙΩ; this Longpérier and De Luynes (p. 6) explain as the name of the cow, Io; the Io legend having been imported into Cilicia by the Argive colonists. For my own part, however, I am disinclined to allow this interpretation of the two letters, because I believe it to be based upon an erroneous reading, for on all the specimens which I have seen with this stamp I read the letters ΙΜ (יי) and not ΙΩ.

An Aramaic inscription is moreover more probable on coins of this district than a Greek one, cf. the letters ΒΟΗ (בעל) over the back of the Bull on a very similar countermark on a coin engraved in De Luynes, pl. ii. 9. But whether we accept or not Longpérier's reading of the two letters, there can be no doubt whatever that the countermark is only found on coins of Cilicia and Pamphylia. To this district therefore we must attribute the coins now under consideration. Their weight also corresponds with that of the coinage of the Cilician coast.

SERIES IV.

The following series of tetradrachms must be distinguished from the preceding, notwithstanding the general similarity of the obverse type.

SILVER.

GRÆCO-ASIATIC STANDARD.

Tetradrachms.

WEIGHT.	OBVERSE.	REVERSE.
229	ΠΥΘΑΓΟΡΗΣ. The king, bearded, crowned, kneeling r. holding bow in l. and spear in r. as on the sigli.	Incuse square adorned with irregular lumps, the surface granulated.
	[Berlin Mus.]	
228	ΠΥΘΑΓΟΡΗ[Σ]. Similar.	Similar.
	[Brit. Mus. Plate III. 18.]	
228	No inscr. Similar.	Similar.
	[Brit. Mus. Plate III. 19.]	
238·1	Similar.	Similar, the incuse little if at all granulated.
	[Brit. Mus.]	

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Weight.	Obverse.	Reverse.
235·7	Similar.	Similar.

[Brit. Mus. Plate III. 20.]

Copper.

The king kneeling r. as on the darics, drawing bow, behind him IA? Countermarked with star.	Incuse square formed of irregular lumps, the surface granulated.

Size 2½ Mionnet's scale = ·55 inch.

[Brit. Mus. Plate III. 21.]

The king kneeling r. holding bow in l. and spear in r.	Similar.

Size 1 of Mionnet = ·35 inch.

[Brit. Mus. Plate III. 22.]

Similar.	Large square containing a smaller one. On one side of the larger square a straight line joins it at right angles. (Perhaps the representation of a military camp or standard.)

Size 2 of Mionnet = ·5 inch.

[Brit. Mus. Plate III. 23.]

The silver coins of this series are clearly intended as imitations, on a larger scale, of the royal Persian coin, the siglos. The Greek inscription in the Ionic dialect shows that these coins must have been struck in some Greek city, probably in the Ionic Satrapy, subject to Persia, but under the immediate government of a Greek Tyrant or Dynast of the name of Pythagoras. The weight is Græco-Asiatic, not of an early period, but of some time after B.C. 408, about which date the weight of the silver stater was raised in many Greek cities, from about 224 to 236 grs. (Brandis, p. 125). Coins of this heavy weight, as I have before remarked, are never found in Phœnicia or in the East. It may therefore be considered as certain that these interesting Græco-Persian coins were issued after the fall of the Athenian Empire by some Greek city which had again fallen into the hands of the Great King. It is noticeable that the uninscribed specimens reach a higher weight than those with ΠΥΘΑΓΟΡΗΣ.[1]

[1] Vaux's endeavour (Num. Chron. vol. xviii. p. 147) to identify the Pythagoras who issued these coins with his namesake, who engraved an inscription on the base of a column at Susa in honour of his friend Arreneides, strategos of Susiana, may be set aside as purely fanciful. This Pythagoras, who calls himself *σωματοφύλαξ*, does not make use of the Ionic dialect, and the forms of the letters of the inscription point clearly to the time of Alexander the Great, or his successors the Seleucid kings (see Loftus, Chaldæa, and Susiana, p. 403). The coins, on the other hand, are considerably earlier than Alexander, and by reason of their heavy weight can only be given to the western coast of Asia Minor.

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SERIES V.

The coins of this series also belong to the Ionic Satrapy, and may be described as follows:

GRÆCO-ASIATIC STANDARD.

Tetradrachm.

COLOPHON?

WEIGHT.	OBVERSE.	REVERSE.
236·2	Bearded head of Persian satrap r. wearing the low tiara.	B A ξ / Λ I Lyre.

[Brit. Mus. Plate III. 24.]

HEAD OF PERSIAN KING (PERSEPOLIS).

The reverse type of this coin, the Lyre, is the Arms, so to speak, of the city of Colophon, where it is most probable that the coin was minted. The head on the obverse is, there can be little doubt, not that of the King of Persia, Artaxerxes Mnemon, whose portrait it is generally considered to be (Waddington, Mélanges, 1861, p. 96), for the Great King always wears the lofty *kidaris* and never the low *tiara*. We must therefore accept the head as that of a Persian satrap. The style of the coin corresponds with that of the time when, after the break-down of the Athenian expedition against Syracuse, the enemies of Athens and of Greek freedom began once more to raise their heads, when Sparta and Persia joined hands, and when orders went forth from the Court of Susa once more to collect tribute from the Asiatic Greeks. It is impossible to speak with greater exactness as to the date of this coin. It is probable however that it is not much later than the year 400 B.C.

GRÆCO-ASIATIC STANDARD.

Tetradrachm.

WEIGHT.	OBVERSE.	REVERSE.
230	Bearded head of Persian satrap r. wearing the low tiara.	Incuse square, within which BAΞ IΛEΩΞ, the king bearded, crowned, kneeling r. holding bow in l. spear in r.; in field l. galley downwards.

[Berlin. Fox. Coll. Plate III. 25.]

Drachm.

52·8	Similar.	BAΞI. Similar, but without galley.

[Brit. Mus. Plate III. 26.]

Obol.

8·9	Same head within a border of dots.	No inscr. same type, border of dots.

[Brit. Mus. Plate III. 27.]

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These three coins bear the same portrait as the silver staters of Colophon described above. The reverses have, in addition to the inscription, the well-known 'arms' of the Great King borrowed from the royal darics. The fabric, more especially that of the drachm, seems to be that of the north-western coast of Asia Minor, and it is worthy of note that a portrait of the same satrap, which has been erroneously designated as a portrait of the Great King himself, occurs on a gold stater of Lampsacus (Waddington, Mélanges, pl. vii. 3), and on a silver stater of Cyzicus (De Luynes, i. 5), on which moreover the inscription ΦΑΡ[Ν]ΑΒΑ fixes the attribution beyond a doubt. Pharnabazus is therefore the Satrap whose portrait we possess on the whole of this series of coins, all of which, it may be safely affirmed, date from the last years of the fifth century. The head upon them is that of a man of middle age, and is far more suitable to Pharnabazus shortly before B.C. 400, than to the youthful King of Persia, Artaxerxes II., who ascended the throne in B.C. 405, at the age of nineteen. The bearded figure of the monarch upon the reverse is of course not intended as a portrait; it is merely the arms of Persia, the badge of the supremacy of the Great King.

As it does not form part of my plan to include in the present article any coins but such as bear either the name or the arms of the King of Persia, I pass over the coins of Pharnabazus above alluded to, struck respectively at Lampsacus and Cyzicus, and having on the obverse the portrait of the Satrap, and on the reverse of the one the sea-horse of Lampsacus, of the other the prow of a galley; but the following gold stater, though by its reverse connected with the Cyzicene mint, must not be omitted, since it has on the obverse the royal Persian archer as on the darics.

CYZICUS.

Gold Stater.

WEIGHT.	OBVERSE.	REVERSE.
132	The king, bearded, crowned, kneeling r. holding bow in l. lance in r.	Prow of galley to l.

[De Luynes Coll. Plate III. 28.]

This unique gold stater clearly belongs to the same period as the silver stater with the name and portrait of Pharnabazus, and is contemporary with the gold coinage of Lampsacus, which, as I have elsewhere shown (Num. Chron. N.S. vol. xvi. p. 288), must be attributed to the end of the fifth and the beginning of the fourth century B.C.

Thus from the earliest invention of the art of coining the precious metals in the middle of the seventh century B.C., in the reigns of Gyges and Ardys in Lydia, I have cast a rapid survey over several classes of coins, Lydian, Persian, Perso-Phœnician, and Græco-Persian, down to the times of the later Achæmenidæ, when the vast empire of Cyrus was already hastening to its fall.

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In the Persian portion of my article I have been compelled to limit myself to the description of such coins only as bear unmistakable indications of having been issued under the authority more or less direct of the Great King, commencing with the royal coinage properly so called, viz. the darics and sigli, and then treating of the provincial money with Persian types of Phœnicia, of Syria, of Cilicia, of Ionia, and Mysia, from Tyre and Sidon on the one hand round the south and west coasts of Asia Minor as far as the shores of the Hellespont and the Propontis.

Nevertheless this review of the coinage of Persia is by no means a complete synopsis of the Persian coinage, the important series of the coins of the satraps having been entirely omitted or only infringed upon in those rare instances where the name or effigy of the King of Persia (the word BAΣIΛEYΣ or the royal arms) appears upon the coins conjointly with that of the satrap. The satrapal coinage forms in itself so important a series, and involves so many epigraphical inquiries, that it demands a separate monograph. The great work of the Duc de Luynes, and the still more valuable researches of M. Waddington, have broken the ground and smoothed the path. Herr H. Droysen has also lately contributed to the pages of the Zeitschrift für Numismatik (Bd. ii. pp. 309–319) a suggestive article on the same subject, in which the student of this class of coins will find a useful list of the satraps who coined money both in their own satrapies and in the territory of Cilicia.

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TABLE OF THE RELATIVE WEIGHTS OF ENGLISH GRAINS AND FRENCH GRAMMES.

Grs.	Grammes.	Grs.	Grammes.	Grains.	Grammes.	Grains.	Grammes.	Grains.	Grammes.	Grains.	Grammes.	Grains.	Grammes.	Grains.	Grammes.
1	·064	41	2·656	81	5·248	121	7·840	161	10·432	201	13·024	241	15·616	290	18 79
2	·129	42	2·720	82	5·312	122	7·905	162	10·497	202	13·089	242	15·680	300	19 44
3	·194	43	2·785	83	5·378	123	7·970	163	10·562	203	13·154	243	15·745	310	20·08
4	·259	44	2·850	84	5·442	124	8·035	164	10 626	204	13·219	244	15 810	320	20·73
5	·324	45	2·915	85	5·508	125	8·100	165	10·691	205	13·284	245	15·875	330	21·38
6	·388	46	2·980	86	5·572	126	8·164	166	10·756	206	13·348	246	15·940	340	22·02
7	·453	47	3·045	87	5·637	127	8·229	167	10·821	207	13·413	247	16·005	350	22·67
8	·518	48	3·110	88	5·702	128	8·294	168	10·886	208	13·478	248	16·070	360	23·32
9	·583	49	3·175	89	5·767	129	8·359	169	10·951	209	13·543	249	16·135	370	23·97
10	·648	50	3 240	90	5·832	130	8·424	170	11 016	210	13·608	250	16·200	380	24·62
11	·712	51	3·304	91	5·896	131	8·488	171	11·080	211	13 672	251	16·264	390	25·27
12	·777	52	3·368	92	5·961	132	8·553	172	11·145	212	13·737	252	16·328	400	25·92
13	·842	53	3·434	93	6·026	133	8·618	173	11·209	213	13·802	253	16·394	410	26·56
14	·907	54	3·498	94	6·091	134	8·682	174	11·274	214	13·867	254	16·458	420	27·20
15	·972	55	3·564	95	6·156	135	8 747	175	11·339	215	13·932	255	16·524	430	27·85
16	1·036	56	3·628	96	6·220	136	8·812	176	11·404	216	13·996	256	16 588	440	28·50
17	1·101	57	3·693	97	6·285	137	8·877	177	11·469	217	14 061	257	16 653	450	29·15
18	1·166	58	3·758	98	6·350	138	8·942	178	11·534	218	14·126	258	16·718	460	29·80
19	1·231	59	3·823	99	6·415	139	9·007	179	11·599	219	14·191	259	16·783	470	30·45
20	1·296	60	3·888	100	6·480	140	9·072	180	11·664	220	14 256	260	16·848	480	31·10
21	1·360	61	3·952	101	6·544	141	9·136	181	11·728	221	14·320	261	16·912	490	31·75
22	1·425	62	4·017	102	6·609	142	9·200	182	11·792	222	14·385	262	16·977	500	32·40
23	1·490	63	4·082	103	6·674	143	9·265	183	11·858	223	14·450	263	17·042	510	33·04
24	1·555	64	4·146	104	6·739	144	9·330	184	11·922	224	14·515	264	17·106	520	33·68
25	1·620	65	4·211	105	6·804	145	9·395	185	11·988	225	14·580	265	17·171	530	34·34
26	1·684	66	4·276	106	6·868	146	9·460	186	12 052	226	14·644	266	17·236	540	34·98
27	1·749	67	4·341	107	6·933	147	9·525	187	12·117	227	14·709	267	17·301	550	35·64
28	1·814	68	4·406	108	6·998	148	9·590	188	12·182	228	14·774	268	17·366	560	36·28
29	1·879	69	4·471	109	7·063	149	9·655	189	12·247	229	14·839	269	17·431	570	36·93
30	1·944	70	4·536	110	7·128	150	9·720	190	12·312	230	14·904	270	17·496	580	37·58
31	2·008	71	4·600	111	7·192	151	9·784	191	12·376	231	14·968	271	17·560	590	38·23
32	2·073	72	4·665	112	7·257	152	9·848	192	12·441	232	15·033	272	17·625	600	38·88
33	2·138	73	4·729	113	7·322	153	9·914	193	12·506	233	15·098	273	17·689	700	45·36
34	2·202	74	4·794	114	7·387	154	9·978	194	12·571	234	15·162	274	17·754	800	51·84
35	2·267	75	4·859	115	7·452	155	10 044	195	12·636	235	15·227	275	17·819	900	58·32
36	2·332	76	4·924	116	7·516	156	10·108	196	12·700	236	15·292	276	17·884	1000	64·80
37	2·397	77	4·989	117	7·581	157	10·173	197	12 765	237	15·357	277	17·949	2000	129·60
38	2·462	78	5·054	118	7·646	158	10·238	198	12·830	238	15·422	278	18·014	3000	194·40
39	2·527	79	5·119	119	7·711	159	10·303	199	12·895	239	15·487	279	18 079	4000	259·20
40	2·592	80	5·184	120	7·776	160	10·368	200	12·960	240	15·552	280	18·144	5000	324·00

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THE INTERNATIONAL NUMISMATA ORIENTALIA.

ADVANCED NOTICE.

Since the issue of the tentative prospectus of an International Numismata Orientalia, based upon the original publication of Marsden's Numismata Orientalia, some important modifications of the preliminary plan and general scope of the work have recommended themselves to the Publishers, which have equally commended themselves to the Editor's chief supporters.

The first design comprehended the narrow purpose of the continuation and completion of the substance of the old text published in 1822, with the concurrent reproduction of the admirably executed Copper-plates prepared for Marsden's comprehensive work, which had recently become the property of Messrs. Trübner & Co.

In both these departments the present undertaking henceforth assumes a new and independent form. In lieu of accepting the task of making coins follow and supplement history, it seeks to prove the claims of Numismatic science to a higher mission in the illustration of the annals of olden time, to a power of instruction and teaching where written history is defective, and, in its lowest phase, of testing and rectifying imperfectly preserved facts.

Under this expanded view, therefore, many subordinate sections of Marsden's old work will either be reduced to due proportions in reference to their obsolete form or omitted altogether: while on the other hand a class of subjects uncontemplated in the first International scheme will be introduced and included in this revised programme. For instance, instead of placing the Dynasties of the Khalifs of Baghdád, as of old, at the head of the list, the present monograph refers to the first efforts in the art of coining as exhibited in the electrum and gold pieces of Lydia and Persia. This will be followed by the Phœnician coins of Asia Minor by an eminent German coadjutor. The highly important and specially suggestive series of the Parthian coins has been undertaken, and is now prepared for the press by Mr. Percy Gardner of the British Museum; and Mr. Madden, whose specialité lies in the "History of the Jewish Coinages," will embody in our pages his exhaustive studies in that division of critical numismatics.

General Cunningham's Indo-Scythian series, the materials of which—enriched by the unprecedentedly instructive contents of the late Peshâwar *find*—are arranged and on their way home from India—will now find a fitting introduction in a full and thrice-elaborated review of "the Bactrian successors of Alexander the Great," to which, as a labour of love, he has devoted himself since his first appearance as the chosen Numismatic coadjutor of James Prinsep in 1836.

Secondly, in regard to the illustrations of the old work, which it was once proposed to rely upon: they have been found, however excellent in themselves, practically unsuitable, either in grouping or mechanical accuracy, for the advanced demands of the present day. Indeed, the improved processes by which science has taught us to obtain, at a less cost, absolute *Sun* facsimiles, has necessarily superseded the hand and eye of the engraver, past or present, however perfect in his craft.

As far as the immediate state of the publication is concerned, it may be mentioned as a plea for temporary delay—that, in an amateur work of this kind, there are many obstacles to continuous or periodical issues, and it has been the Editor's aim rather to avoid such publications as were merely mechanical or repetitive; but, on the other hand, there has been no lack of support of the most efficient character, either at home or abroad—indeed, the Editor has had to decline many offers of contributions on the part of Numismatists of established reputation, as our lists are virtually made up beyond any prospect of absence of matter or immediate chance of publication of many of the already accepted papers.

Mr. Rhys Davids' Essay on Ceylon Coins only awaits the completion of the illustrations. Mr. Rogers' paper will appear as Part IV. Sir W. Elliot is well advanced with his contribution; while M. Sauvaire's article has long been ready, under Mr. Rogers' careful translation, but its length has hitherto precluded its publication.

M. de Saulcy is, as of old, ever prepared to come to the front when his aid is called for,—and Dr. Blochmann has already done so much, in the Journal of the Asiatic Society of Bengal, towards the illustration of the local Coinages, that we have merely to reprint his papers whenever the serial arrangement of our articles may call for a consecutive continuation of the Pathán coins of Imperial Dehli. The Editor's own section of the general series is likewise reserved for somewhat similar motives.

M. Gregorieff's completion of his Tátar Dynasties has been deferred during his late duties as President of the Oriental Congress at St. Petersburg. M. Tiesenhausen, whom we might have enlisted and who would willingly join our ranks at this time, has anticipated us in his elaborate survey of "Les Monnaies des Khalifes Orientaux" (1873), which may well claim to constitute *the* standard authority, in its own department, for many years to come. In another division of Numismatics, the Russian savants have been in advance of us in the publication of the plates of Sassanian coins representing the patient accumulations of 30 years of the life of M. de Bartholomæi (1873—second issue 1875, with an introduction by Prof. B. Dorn). These examples, however, prove less instructive than might have been anticipated. The sameness and iteration of the issues of the Sassanians has always been a subject of remark, but the singular deficiency of important novelties has seldom been so prominently displayed as in this collection, whose representative specimens spread over 32 well-filled 4to. plates.—[E. T.]

SUBJECTS ALREADY UNDERTAKEN, WITH THE NAMES OF CONTRIBUTORS.

Phœnician Coins	DR. JULIUS EUTING, Strassburg.
Coins of the Jews	MR. F. W. MADDEN.
Parthian Coins	MR. PERCY GARDNER, M.A.
Bactrian and Indo-Scythic Coins	GEN. A. CUNNINGHAM, Archæological Surveyor of India.
Coins of the Sassanians of Persia	MR. EDWARD THOMAS, F.R.S.
——— early Arabico-Byzantine adaptation	M. F. DE SAULCY, Paris.
——— Southern India	SIR WALTER ELLIOT, late Madras C.S.
——— Ceylon	MR. RHYS DAVIDS, late Ceylon C.S.
——— Arakan and Pegu	SIR ARTHUR PHAYRE, late Commissioner of British Burmah.
——— the Khalifs of Spain, etc.	DON PASCUAL DE GAYANGOS, Madrid.
——— the Fatimites of Egypt	M. H. SAUVAIRE, Cairo.
——— the Túlún Dynasty of Egypt	MR. E. T. ROGERS, Cairo.
——— the Ikhshídís	MR. REGINALD STUART POOLE, Keeper of Coins, B.M.
——— the Seljuks and Atábeks	MR. STANLEY L. POOLE, C.C.C., Oxford.
——— the Bengal Sultáns	DR. H. BLOCHMANN, Calcutta.
——— the Russo-Tátar Dynasties	PROFESSOR GREGORIEFF, St. Petersburg.

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COINAGE OF LYDIA AND PERSIA.

PLATE I

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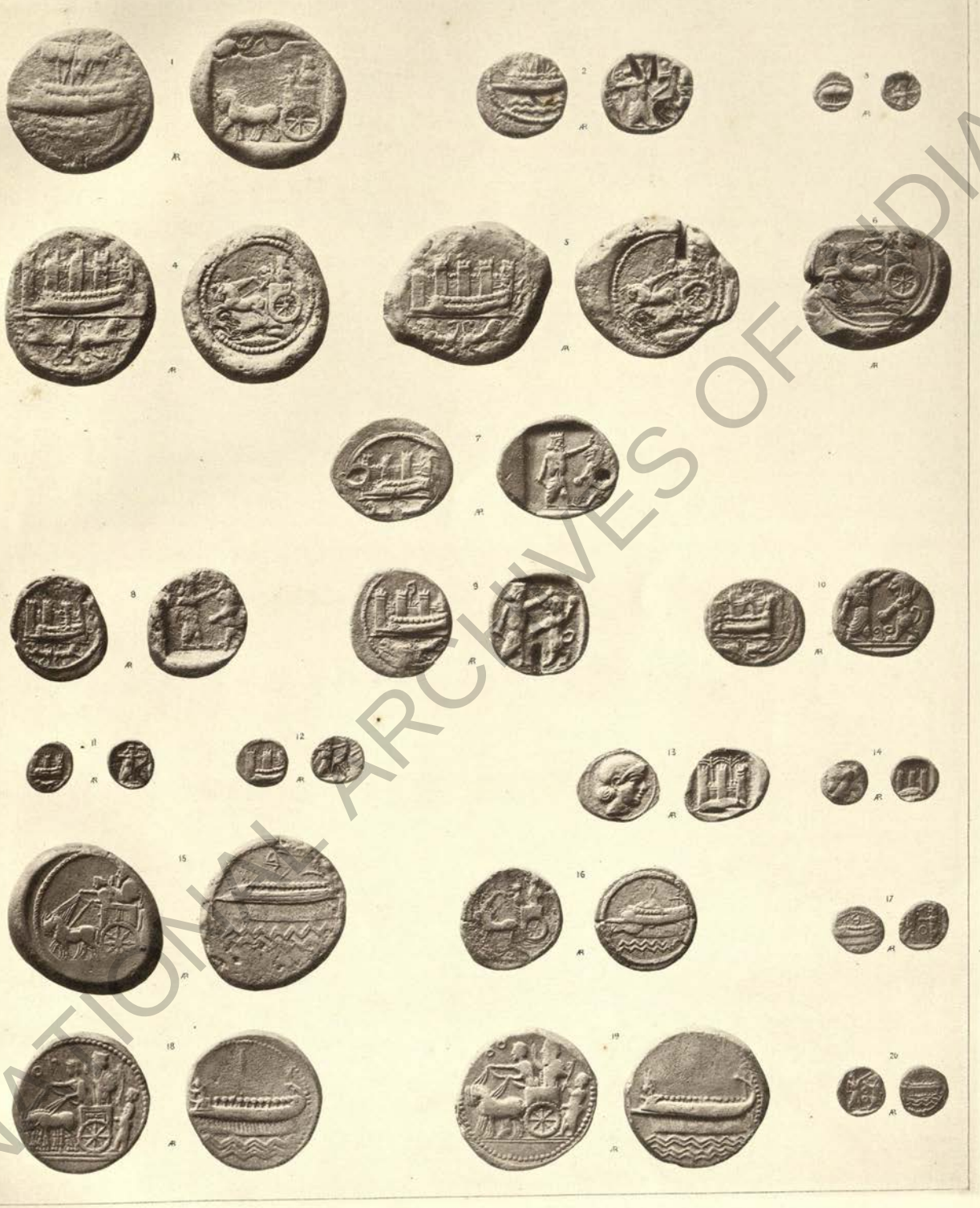

COINAGE OF LYDIA AND PERSIA.

PLATE II.

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COINAGE OF LYDIA AND PERSIA.

PLATE III.

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